

AUGUST 1960

National

# SAFETY NEWS

A NATIONAL SAFETY COUNCIL PUBLICATION

With Features Section

## THE JOURNAL

of the American Society of  
Safety Engineers

Safe Seconds  
Mount Up!





## WHAT KIND OF TOES ARE YOU BUYING?

What kind of toes are you buying, steel toes or human toes? Sounds crude does it? Not if you face the facts, it doesn't!

Unfortunately, there are literally thousands of small and medium industrial plants that give no thought whatsoever to protecting their workers' feet with safety footwear.

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safety shoes.

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### THE COVER

DRAMATIZING a plant record, a me-  
chanical safety clock at Du Pont's Deep-  
water Point, N. J., Chambers Works points  
out that it takes many millions of safe  
minutes and seconds to make a million safe  
man-hours.

40,000 copies of this issue were printed

National Safety News, August, 1960

# SAFETY NEWS

A NATIONAL SAFETY COUNCIL PUBLICATION

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AUGUST 1960

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## EDITORIAL

### That Safety Speech

TALKING in public is a common experience for safety men. They are invited frequently to present the cause at PTA meetings, luncheon clubs, schools, ASSE chapters, local council meetings, and other public gatherings as well as at in-plant meetings.

And right now, several hundred men and women are at work on talks, speeches, papers, and addresses for the National Safety Congress which will be held in Chicago, October 17 through 21. Some of them, indeed, have already sent in their manuscripts, which speeds up the production of the printed *Transactions*.

Preparation of a public talk of any sort requires authentic, up-to-date, and interesting information. The information must be put in logical order, building up toward the purpose in mind. The outline must be filled with facts, figures, and illustrations. But don't overestimate an audience's capacity for statistics.

Here are some hints on speech preparation from the *Monthly Letter* of The Royal Bank of Canada:

Start by blocking out roughly your thoughts on the topic. Make notes as ideas come to you.

Get something down in black and white at once. Make an outline, if you wish, around the main headings—problem, cause, extent, and cure.

Think about the subject. Consider the audience, its knowledge and experience. List the qualities that touch their vital interests—profit, parental love, ambition, comfort, self-preservation, and other motives.

In your introduction, pinpoint your purpose. In your discussion, present your points in an orderly progressive way. In conclusion, focus and re-emphasize important points. Appeal for action.

Read widely to amplify your ideas. Read all sides of a question to be ready for objections.

Having jotted down the facts, points, and illustrations on separate pieces of paper, rearrange them in an intelligible sequence.

Then start writing. Write as you would talk—that's what you'll be doing on the platform. Get those thoughts on paper and polish them later.

Then practice it on your feet for timing. Cut when necessary.

By what standards should speech-building material be judged?

Point No. 1 is accuracy. Is the material correct technically? Is it true not only in itself but in this application of it? Will the audience understand it?

How much should you write? An average speaking pace is about 125 words a minute. Both chairman and audience love a speaker who keeps within the time limit.

How about reading a speech? To the teacher of public speaking, that's the unpardonable sin. But the *Monthly Letter* assures us it's OK. Even Cicero, we are told, read his more important speeches. Undoubtedly he raised his voice and looked his audience in the eye from time to time.

A factual paper, well read, is often easier to follow than a talk off the cuff, and the speaker is more likely to stay on the beam. But if you want to stampede an audience, that's something else.

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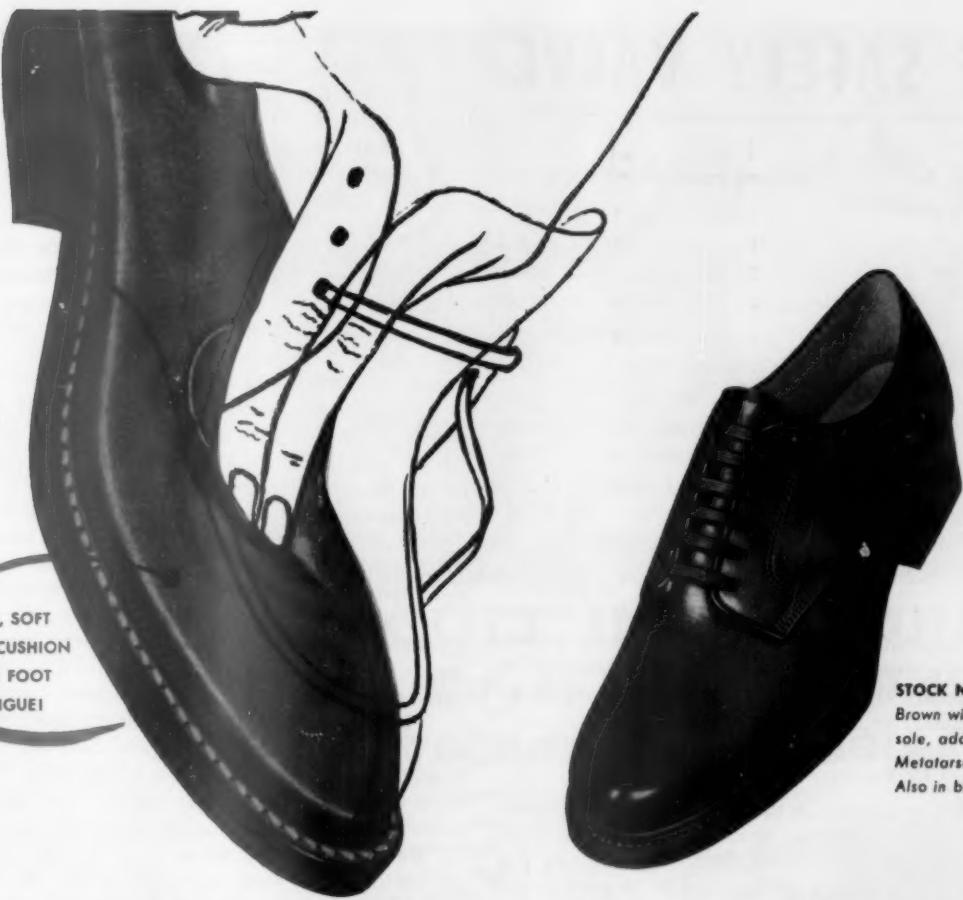
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# THE SAFETY VALVE



**Nothing human is alien to me**

—TERENCE

## HIGHWAY SINNERS

WHEN BILL ANDREWS resigned as editorial director for NSC some eight years ago, he didn't leave his safety interests behind. His monthly "Diary of a Safety Engineer" has thousands of loyal readers who want to see what new problem confronts the Safety Engineer (still unnamed) and how he is going to solve it.

As a parish priest and more recently as executive editor of *The Living Church*, the Reverend E. W. Andrews has continued to preach safety as a moral responsibility. In a recent editorial he warns churchmen of the "seven deadly sins"—a classification of wrongful behavior handed to the church in ancient times.

These seven sins and their application to driving, as interpreted by Father Andrews, are:

1. *Sloth*, or laziness, is the sin that makes the motorist unwilling to take the time to correct mechanical faults in his car. It prevents the taking of simple precautions. It produces a lethargy deadly to body as well as to soul. It is behind such crimes as double parking.

2. *Greed* is so obviously a traffic sin that the greedy driver has a specific title—road hog. The greedy one demands more than his share of the road, demands the right to be first at an intersection.

3. *Lust*, in a sexual sense, produces some accidents through one-armed driving and distraction. But lust for speed and excitement is deadlier in traffic.

4. *Gluttony*, particularly in the use of alcohol, dulls the senses, weakens the reflexes, spoils judgment. It is one of the deadly killers on the highway—and as deadly for the drinking pedestrian as for the drinking driver.

5. *Envy* is a classic killer. The driver who resents being passed or left behind at a stoplight is being moved by envy to behavior that jeopardizes life.

6. *Anger* is a familiar phenomenon in drivers. The fault in the other driver—whether it be a real fault or an imagined one—stirs resentment and often provokes hazardous response. We understand our own faults, and excuse them by saying we are only human and therefore subject to error. But similar faults prove to us the inhumanity of the "enemy" in the other car whose fault imperils or inconveniences us. In traffic, petty irritation can be as deadly as roaring wrath.

7. *Pride*. Behind every one of these driving sins lies the central sin of pride . . . once encased in sheet steel, with the power of more than 100 horses responding to the gentle touch of a foot, we find ourselves lifted to a false sense of greatness. Anyone—whether he be the

other driver, an overworked patrolman, or even a feeble old lady tottering across the street—who in any way diminishes our exercise of this greatness is a threat to pride. So is the speed sign, the stop light, the very design of the highway itself.

"Pride," it should be noted, has several shades of meaning. The right kind can be a safeguard—the kind that keeps you from doing something that isn't cricket. Father Andrews uses the word in the same sense as in the King James Bible—an inordinate opinion of one's own importance.

Along this line, it seems to me we can also learn something from a much-misunderstood pagan—a Greek named Epicurus. This kindly philosopher, whose name has become associated solely with sensuous pleasures, taught the importance of moderation and good taste. He stressed four virtues: wisdom, courage, justice, and temperance. A life guided by those qualities should have no room for the deadly sins. But virtues don't come naturally to all people. The major faiths, therefore, stress the need for communion with God in the development of moral and spiritual strength.

One person may find this strength for the good life through the sacraments of his church; another may find it in the stillness of a Quaker meeting. But we all agree with Father Andrew's concluding message:

"The Christian is called upon to live responsibly. He knows that he cannot expect God to rescue him from the physical consequences of his faults. He knows he is bound to observe the laws of the state and the rules of prudence which govern specific situations.

"But above all, he should know that the other driver is that neighbor who, our Lord taught, he must love as he loves himself. For, to the Christian, the greatest peril is not killing himself but causing harm to others."

\* \* \*

SCIENCE SEEKS TO BUILD, not to destroy; to aid, not to hinder. Yet poison can heal or kill, and the steam which drives an engine can scald as well. Nature is a blind force which serves the evildoer as readily as it serves the benevolent. —Baltasar Gracian, "*The Art of Worldly Wisdom*."

\* \* \*

WITH THE EXCEPTION of the instinct of self preservation, the propensity for emulation is probably the strongest and most alert and persistent of the economic motives proper.—Thorstein Veblen.

\* \* \*

IN SEASON of tumult and discord bad men have most power; mental and moral excellence require peace and quietness.—*Tacitus*.

*Carmen Fish*

National Safety News, August, 1960

## The Industrial Enigma

*Which is the best type  
of oxygen equipment  
to purchase?*

by Arthur E. Miller,  
Director of Research,  
Scott Aviation Corporation

By far the greatest percentage of respiratory emergencies involve persons who are breathing but who require respiratory assistance, either in the form of an oxygen-enriched inspiration, or at a slight positive pressure to assist inspiration and to increase the tidal volume and ventilation rate. For such cases, a good oxygen inhalator is preferable to a resuscitator.

### **Inhalator vs. Resuscitator**

By definition, an inhalator is a device which supplies oxygen (or a mixture of air and oxygen) for a subject to breathe. A resuscitator, on the other hand, is an apparatus which produces ventilation of the lungs by providing variations of pulmonary pressure in non-breathing (apneic) subjects.

### **Importance of Inhalator**

An inhalator can be used as an adjunct to resuscitation by the manual artificial respiration methods. But of greater importance, it can be used more effectively than a resuscitator in treating victims of smoke inhalation, toxic atmospheres, shock, asphyxiation, and coronary or pulmonary emergencies.

### **Inhalator Simple to Use**

The ideal inhalator should be simple enough so that it can be used properly, even by inexperienced personnel. It should require nothing more than opening the oxygen supply valve, placing the mask on the patient's face, and letting the patient breathe. It should supply the patient with sufficient oxygen to satisfy his bodily requirements, even for the dyspeptic patient, without requiring observation or manipulation by the attendant, of flow regulators, flow gages, bags, or other controls. It should be capable of assisting respiration by providing oxygen at a very slight positive pressure, sufficient to make inspiration easier, but not great enough to impede expiration.



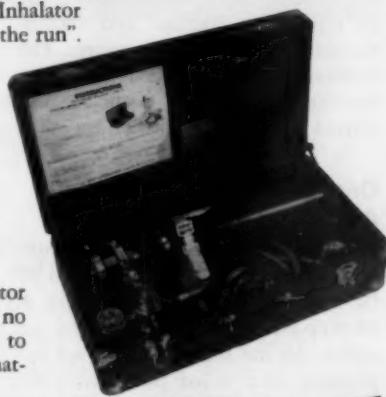
## **SCOTT INHALATORS** ... give you the *Most* for your **OXYGEN EQUIPMENT DOLLAR**

In its convenient carrying case, the Scott Inhalator is light enough to carry to the patient "on the run". Two simple operations (open valve, hold mask to face) and you are administering oxygen like an expert.

Oxygen flows at the rate required by the patient. Flow stops on exhalation to conserve oxygen. If greater breathing assistance seems necessary, a continuous flow of oxygen is obtained by simply pressing a button.

Administering oxygen with a Scott Inhalator requires no practice or training. There are no adjustments to make, no flow regulators to operate — everything is controlled automatically by the patient's breathing.

Surprisingly, you can place several Scott Inhalators around your plant for the same money you would spend for only one resuscitator.



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# AROUND THE COMPASS



## ACTIVITIES

## • PROGRAMS

## • EVENTS

By THOMAS J. NOLAN

Field Service Department, NSC

### Traffic Safety Interim Committee

The monthly newsletter of the Highway Traffic Safety Center of Michigan State University says a special senate interim committee "to study preventive methods concerning highway safety" has been established by the Michigan State Legislature.

This committee will function between the 1960 and 1961 regular sessions of the legislature to study the state's traffic safety needs and to report its findings and recommendations to the legislature. The committee is authorized to obtain assistance from state agencies concerned with traffic safety.

### One of Three Applicants Failed Exam

The May 1960 issue of *Chicago Traffic Safety Review*, published by the Citizens Traffic Safety Board of Metropolitan Chicago, carried an article on the number of driver applicants who failed the new, strict Illinois driver examination. The article was highlighted with pictures of applicants, both passing and failing parts of the driving test.

The article called attention to the number of first applicants—chiefly teen-agers—who flunk their driving tests. Statistics showed that one of every three applicants failed the exam. Of failures, approximately two-thirds flunked the driving test. The tabulation covered applicants for drivers' licenses at a new driver licensing station, located on the west side of Chicago.

Comments on the tests by Secretary of State Charles F. Carpenter were quoted. The Secretary said it is alarming to see how many of our youths are being given inadequate

and improper instruction. Fortunately, he continued, we can spot the totally incompetent driver with our new testing methods. However, the indication is strong, the Secretary said, that driver education with competent, professional behind-the-wheel instruction is fundamental to a continuing successful battle to reduce traffic accidents.

### Conference Executive Committee Meeting

Among actions taken by the executive committee of the Conference of State and Local Safety Organizations at its meeting in Chicago, May 19-20, were these:

1. Recommended accreditation of two local safety organizations and continued accreditation of 40. Accreditation was based on original appraisal reports received from two organizations, and continued accreditation was based on anniversary reports received from the other 40.

2. Reaffirmed NSC policy on the driving of miniature motor vehicles by operators below licensing age and urged all state and local safety councils to take a strong stand.

3. Expressed informally its approval of a meeting of business leaders to discuss organization problems at the 1960 Congress.

4. Recommended that NSC staff be given interim authority to recommend support for state and local organizations not accredited but which, in its considered judgment, are working towards accreditation or re-accreditation.

5. Recommended that the Conference (of State and Local Safety Organizations) require that when an affiliated council decides to depart from or to oppose a stated National Safety Council policy,

standard or position, that it be required first, to notify the National Safety Council of their intent; and second, that the affiliated council be required to exert every effort to make clear the fact that its position is in opposition to, or at variance with National Safety Council policy; and further, that the affiliated council be encouraged to refrain from any public enunciation of this deviation of policy.

### "Thank You" Note From Little Girl

The Safety Council of Greater Lansing presented a *thank you* from a little girl at their 21st Annual Banquet. The note was in the form of a brief talk.

The little girl introduced herself and thanked those in attendance for being alive today. She went on to explain she represented the 24 lives saved by the council's efforts during the past 10 years. She added that, even though there are now twice as many people and twice as many cars, there were 24 fewer deaths than in the 10 years before she was born.

The 24 lives may not seem to be many, but to the families who would have been involved, each life was precious, and years of heartbreak and loss were saved, she said.

### News About Local Presidents

Joe Roddy, president of the Chattanooga (Tenn.) Safety Council, died suddenly on June 4. His term of office will be completed by Hubert A. Pless, Jr.

The Alberta (Canada) Safety Council recently elected J. C. Jefferson of Edmonton president at their 12th Annual Meeting in Red Deer.

James P. Anderson, president of Dunlop Canada Limited, was recently elected president of the Ontario Safety League by the executive committee.

The Niles Township Safety Council announces the election of Charles L. Wiese, Allstate Insurance Company, as chairman of the board of the council.

At a recent meeting, Clyde Zamjahn of the Waukesha Foundry Company, was elected president of the Wisconsin Council of Safety.

***Nothing else keeps  
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(and safer) than GENUINE---***

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SIGHT SAVER WALL DISPENSERS are available from your safety supply distributor at \$1.50 each. Locate them conveniently throughout your plant to put maximum eye safety at every worker's fingertips.

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MIDLAND, MICHIGAN

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# THE SAFETY LIBRARY



Reviews of books, pamphlets and periodical articles of interest to safety men

By LOIS ZEARING, Librarian, NSC

## For Safety Speakers

*What to Say at a Safety Meeting.* By Joseph A. De Luca, Jr. Published by New Forum Publishing Co., Inc., P. O. Drawer 2724, Wilmington 5, Del. 1960, 50 pp. \$2.

A DOWN TO EARTH book on what to say at a safety meeting written by a safety man with a proven safety record. The author draws upon his 27 years of experience and suggests a number of topics that can be utilized to add spice and flavor to safety meetings. The topics deal with harmful attitudes and other factors that cause people to commit unsafe acts.

The book is written for supervisors and would make a good reference book to prevent safety meetings from becoming humdrum.

L. C. SMITH

## Health Service

*A Guide to Records for Health Services in Small Industries.* Published by the American Conference of Governmental Hygienists, c/o Occupational Health Field Headquarters, Public Health Service, U. S. Department of Health, Education and Welfare, 1014 Broadway, Cincinnati 2, Ohio. 32 pp. \$4.

THIS MANUAL, consisting of 32 pages of text and illustrated forms, was developed in response to a need for specific guidelines on health records in industry. It is especially designed to assist in developing or improving record systems for employee health services in small industrial or business establishments.

L. C. SMITH

## BOOKS AND PAMPHLETS

### Mines

*Coal-Mine Fires and Gas and/or Dust Ignitions Since Enactment of the 1952 Federal Coal Mine Safety Act.* 1960. 9pp. Publications Distribution Section, U. S. Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pa. (Information Circular 7967) Free.

### Disasters

"How to Plan for Unexpected Disasters." Francis J. Burgogne. *Safety Maintenance.* June 1960. pp. 14-18, 47.

### Dust

"How to Control Dust from Coal Handling Operations." *Plant Maintenance and Engineering.* May 1960. pp. 41-42.

### Electrical Industry

"Job Training Helps Reduce Line Accidents." A. E. Becker. *Electrical World.* May 30, 1960. p. 36.

### Electricity

"Standards Speed Electronic Control." *American Machinist/Metalworking Manufacturing.* May 16, 1960. pp. 94-95.

### Elevators

"Elevator Poses Hazard During San Francisco Alarm." *Fire Engineering.* May 1960. p. 402.

### Hospitals

"The Check List: Guardian of Established Procedures." Owen B. Hardy. *Hospitals, Journal of the American Hospital Association.* June 1, 1960. pp. 46-47.

### Insurance

"Safety Is Succeeding: Insurance Loss-Prevention Has Helped Curtail Disabling Work Injuries Under Stress of Rising Employment." *Journal of American Insurance.* June 1960. pp. 16-17.

### Maintenance

"How to Plan Maintenance Into New Plants." Clifford S. Strike. *Safety Maintenance.* June 1960. pp. 10-12.

### Mines

"Miner Swing Chain Repaired Easier and Safer." *Coal Age.* May 1960. p. 136.

### Snake Bites

"Ineffectiveness of Suction in Removing Snake Venom From Open Wounds." Robert S. Leopold and Godfrey S. Huber. *United States Armed Forces Medical Journal.* June 1960. pp. 682-685.

### Wastes

"Measurements of Organic Contaminants in the Nation's Rivers." Francis M. Middleton and others. *Industrial and Engineering Chemistry.* June 1960. pp. 99A-102A.



Willson WFD Safety Glasses combine broad frontal protection, attractive streetwear styling.

"Our Willson safety survey showed us how to cut eye-injury costs more than 33%"

Corbin P. Easterling, Safety Director  
Schlage Lock Co., San Francisco, Calif.

Turn the page...

"With modern machines creating new safety hazards and more costly downtime, we couldn't afford not to try Willson's eye-protection plant survey."



Only months after completing a department-by-department safety survey, Corbin P. Easterling, safety director, Schlage Lock Co., is showing management a *decrease of more than  $\frac{1}{3}$  in eye-injury costs*. Total number of eye injuries also has dropped for this San Francisco manufacturer of locks and door closers. Comments Easterling:

"An effective safety program, created as a result of the Willson eye-protection survey, is our answer to faster machine speeds, increased chip velocities, and new dust hazards."

One finding by Schlage Lock's safety survey was a hidden cost totaling \$12,240 for 288 eye injuries in a recent year. This *real* cost of eye injuries, which does not include compensation payments, is based on the following averages:

Time lost by other employees to assist injured.....	\$ 6.00
Time spent by foreman and superintendent to investigate cause of accident.....	7.50
Selecting, training, and breaking in new employee.....	10.00
Preparation of accident report.....	3.00
Safety department investigation and report on accident.....	6.00
Medical department expense, materials, and nurse's time.....	5.00
Transportation to hospital, then home.....	5.00
Average total <u>indirect</u> cost of eye injury	\$42.50

"Another major benefit accruing from our Willson survey is a substantial annual

reduction in Workmen's Compensation insurance premiums.

"Without our present safety program, we would pay a minimum of \$1.96 for every \$100.00 of factory payroll. Our new program has sliced the cost to only \$1.31. This alone saves us  $\frac{1}{3}$  of our former eye-protection cost."

Specific measurements such as these provide management with information it needs for quick corrective action, and proves that the best available personnel protection pays for itself quickly out of cost savings.

Ask your Willson representative to help you complete a survey and set up a comprehensive eye-protection program in your own plant. (Survey help also available for respiratory, hearing, and head-protection programs.)



**His eye saved by Willson safety spectacles**—Toolmaker James Lau discusses new safety program with General Foreman R. A. Nerger (right) and Safety Director Easterling.

Willson Products Division  
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Reading, Pennsylvania  
Safety Supply Company of Canada

**WILLSON®**



By BILL ANDREWS

**Why does a plant's safety record suddenly go sour? Investigation of a rash of accidents reveals some causes originating off the job and the help of community leaders is enlisted**

## HONEYMOON'S END

*August 5, 1960*

TONIGHT, I ate a cheese sandwich and a milk-shake at my desk, and now, at 11 p.m., I'm still sitting in my shirt sleeves, my necktie hung over the doorknob, and a sweat-soaked handkerchief beside my arm on the desk top.

Outside the cloudy night is still windless and hot, but there is a flicker of lightning to the west and a faint mutter of thunder.

I need very badly to come up with some very intelligent answers to some very difficult questions.

Or maybe it is just one question: Why does the accident record of a large and diverse industrial complex move along quite satisfactorily for many months, and then suddenly go sour?

It all seemed to start with the Sweet-Sweet explosion last month. It was followed by a series of minor accidents and near-accidents. The day I got back from my vacation late in July, a delivery truck hit a sedan inside the project gates and killed two foremen from the Blackward shop.

There seemed to be nothing to go on. The truck driver was a local boy of 22 with a clean accident record — though investigation showed the plant protection force had reported him for careless driving twice in the month preceding the accident. He admitted to having two beers on the hot afternoon of the accident. I suspect it was nearer six.

A week later, we had a call to visit a shop on the project that was having a rash of horseplay. Naturally, nobody asked our help until

they had a serious eye injury resulting from a prankster's use of an air hose.

Then, yesterday, a girl on a punch press lost part of a hand, and an hour later, in the very same shop, another girl suffered a broken ankle when a man pushed a hand truck against her and pinned her against her machine.

Neither case made sense. The machine where the amputation occurred was guarded—adequately, I thought. But a jam occurred; the guard was removed by the foreman to clear it. When another jam occurred half an hour later, the girl, a local farmer's daughter with three months' shop experience, removed the guard as she had seen the foreman do. It repeated while she was struggling with the jam.

"How was I to know?" the foreman complained. "I didn't know she was raised with tractors and could use a wrench—or would even think of using one."

The hand trucker was another local product, a small-town boy, harum-scarum and a show-off. He was fond of shoving his heavy truck loads fast and letting them coast to a stop, like a saloonkeeper sliding beer steins along his bar.

There were some other cases where no lost time occurred, but where only luck prevented serious accidents.

After two restless nights thrashing over the problem in bed, I shipped the family off to the lake for the weekend without me and planned this night session of searching for answers.

By 9 p.m. I had eliminated a lot of possible common bases for the accidents. It wasn't type of work operation or type of rule violation, company or skill level, sex or time of day.

That left the season of the year—the accidents did not begin until July. It left certain characteristics of the employees responsible. Excluding the Sweet-Sweet explosion, the accidents were directly caused by actions of young workers raised nearby in small towns or on farms who have, in the last two years, been recruited to work on the project—on the conglomeration of industrial operations assembled in this new industrial development.

There was another common factor — supervision failure. In three out of four of the cases I've listed, the accident was the result of a type of worker behavior observed by or reported to supervision before it caused an accident. In the fourth—the punch press amputation — the foreman did not know of the girl's mechanical aptitude and interest, but her fellow workers did, and so did the personnel man who had interviewed her before she was employed. There was a note about it on the girl's referral card in the foreman's file, but he had never read it.

All the supervision in these cases was from the outside, imported by the companies when they opened their plants on the project.

So, there is a common ground—but what does it mean? I need advice — advice of people who know

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W. T. Piper, "the Henry Ford of aviation," with William Swift, Employers Mutuals of Wausau Safety Engineer who has been helping solve Piper's health and safety problems for fifteen years.

**HERE'S HOW THE WORLD'S LEADING MANUFACTURER  
OF PRIVATE AIRCRAFT SOLVES PROBLEMS YOU MAY BE FACING TOO...**

# Wausau Story

*at PIPER AIRCRAFT CORPORATION, Lock Haven, Pennsylvania*



**Problem:** Protecting workers from fumes when lead-coated spouts are welded to fuel tanks.

*Employers Mutuals of Wausau* help Piper solve this problem . . . Specialists helped plan adequate exhaust systems, Safety Engineers recommend protective masks. Special medical consultation provided on physical examinations and x-rays of welders.



**Problem:** To provide first aid and health service for 2211 people at the Piper plant.

*Employers Mutuals* worked with Piper officials to develop the new health unit . . . Nursing Consultants aided in setting up procedures and records . . . maintain close contact with Piper's staff.



**Problem:** 970 degree "baths" treat aluminum to make it tough.

*Employers Mutuals* helps Piper work out safe handling procedures that protect workers from burns . . . recommends protective gear including face helmet, asbestos gloves.



**W. T. PIPER**, President of *Piper Aircraft*, has seen more than 50,000 Piper planes take off from Lock Haven for delivery all over the world.

Proud as he is of this top production record, Mr. Piper doesn't seem surprised. "Some thirty years ago," he says, "I discovered that flying a plane was simpler than driving a team of horses. So I figured more and more people would take to flying their own planes."

And that's exactly what is happening. Today at Lock Haven, the growing demand keeps 2211 craftsmen busy turning out thirteen aircraft a day . . . six basic models ranging from the world-famous Super Cub to the record-making new Comanche.

"We have to step lively to keep pace," says Mr. Piper. "Our plant has been expanded to more than four times the size of our original factory. We've installed the latest production machinery and adopted the most efficient production techniques. And we aren't stopping there. We've got a new development center at Vero Beach in Florida to help us maintain leadership in our field . . . and plans are underway to expand our manufacturing facilities even more."

"You're well aware that progress like this creates some problems. Quite a few, in fact. Take the matter of the health and safety of our people. New problems arise in this area whenever a production change is made. The problem might come from the use of different material or from a new method. Whatever it is, we know how to deal with it: We work closely with Employers Mutuals of Wausau.

"With their broad experience and practical knowledge, Employers Mutuals often helps us solve a problem before it pops up. That's not always possible, of course, but we've seen that happen here frequently. And if the problem is a stubborn one . . . requiring watchful care and continued work, we're sure Employers Mutuals experts will help us until the job is done properly. What's more, they keep on helping us so we don't neglect our safe working habits.

"You'll be interested to know that Employers Mutuals people have been working with us for almost fifteen years now. That's why we can say, most heartily, 'They're good people to do business with'."



**Problem:** When wing frames are covered with cotton fabric, the material is saturated with a solution to make it fit tight. But the solution often irritated hands of the women who stitch the fabric.

**Employers Mutuals** helped eliminate dermatitis by advising how to clean hands properly and use protective creams.



**Problem:** Aircraft frames are blasted with fine grit to make smooth finishes.

**Employers Mutuals** helped develop complete protective gear. At one time, work like this presented a serious silicosis hazard. Employers Mutuals has played a leading part through the years to eliminate this hazard from industry.

\* \* \*

*Maybe you don't produce planes . . . but whatever your products are and wherever they're manufactured, you do have problems of health and safety that we can help you solve . . . and probably save you money too.*

*Employers Mutuals of Wausau has offices all across the country to serve you. We write all forms of fire, group and casualty insurance (including automobile). In the field of workmen's compensation we are one of the largest. We are proud of our reputation for fast claim service and our experience in preventing accidents. Consult your telephone directory for your nearest representative or write us in Wausau, Wisconsin.*



*"Good people to do business with"*

## Employers Mutuals of Wausau

# TINTED OPTICAL MEDIA

## Facts and fallacies about sunglasses

By HEDWIG S. KUHN, M.D.

Hammond, Indiana

**TINTED GLASSES** of various types and optical qualities are now sold at drug, variety, and department stores. Inexpensive sunglasses have a definite usefulness. It should be remembered also that a visor or broad-brimmed hat is an effective shield and will frequently obviate the need for sunglasses.

So-called "night driving lenses," claimed to shield the eyes from the glare of oncoming headlights, should never be used. Any such lens, whether colored, reflecting, or polarizing, reduces the total light transmitted to the eye and renders the task of seeing at night more difficult. The same objection applies to the use of colored windshields or filtering or polarizing shields which may prove a hazard at night.

**Types.** Tinted optical media—plano or prescription lenses made into glasses and carrying a tint—fall into several categories:

- A. Sunglasses.
  - 1. Neutral
  - 2. Colored
  - 3. Polarizing
  - 4. Reflecting
- B. Tinted glasses for constant wear.
- C. Colored glasses for industrial, military, or other specialized purposes. These are not included in this discussion.

**Definitions.** Sunglasses are lenses designed primarily for wear in sunlight of high intensity. They are of the following types:

1. Neutral lenses absorb all wave lengths of the visible spectrum (light) in approximately equal degree. The light transmitted by such lenses is reduced in intensity, but its color is essentially unchanged.

2. Colored lenses absorb the light

rays of various wave lengths in unequal degree. Light transmitted through such lenses is reduced in intensity, and its color is modified by the unequal absorption.

3. Polarizing lenses absorb light rays which vibrate in some planes. Light vibrating in other planes is transmitted.

4. Reflecting lenses depend on a thin metallic coating which reflects a portion of the light. The intensity of light reaching the eye is reduced.

The principles of absorption, polarization, and reflection can be combined in a single lens.

Tinted glasses for constant wear are mildly colored lenses for use in optical prescriptions. In general, these lenses transmit a high percentage of light.

There is no objection to the use of mildly tinted lenses for daytime use if an individual wants them and doesn't mind the extra cost. Their advantage over crown glass for use under fluorescent lighting and other lighting conditions is doubtful. Even slight tints do reduce visibility at night.

In the absence of any abnormal eye condition, the more dense tints should not be prescribed for constant wear. The total light transmission of the lighter tints differs so little from that of crown glass that they are not considered effective filters in pathologic states.

**Requirements.** To inform and protect purchasers, sunglass manufacturers should be encouraged to label their products with respect to the following properties:

1. Transmission of visible light expressed in percentage, together with the tolerance of deviation from the standard. Example: Transmission 20 per cent plus or minus.

2. Type of manufacture: Ground and polished, bentplate, blown, etc.

3. Base curve. Example: 6 base curve.

4. Optical tolerances:

a. Power, as worn, stated in fraction of a diopter.

b. Prism, as worn, stated in fraction of a diopter. Example: "Tolerance"—power 1/16; prism 1/16 A.

5. An expression of the percentage neutrality when a standard acceptable to the ophthalmic professions is developed.

### Questions and Answers

1. Does the wearing of tinted glasses increase visual acuity by reducing chromatic aberration or by eliminating scattered, violet, green, and blue light?

No accepted study has yet been produced to support this thesis.

2. Do sunglasses affect perception of color?

Colored sunglasses (in contradistinction to neutral glasses) affect perception of color to some extent. Under ordinary circumstances, distortion of color perception by the color-normal person is not significant. However, at least 5 per cent of our population is not color normal. Even color-normal individuals frequently encounter situations in which colored glasses may constitute a hazard. Example: Recognition of colored traffic signals viewed against the bright background of a sunset.

3. Are there lenses which absorb the wave lengths responsible for cataract?

There is no conclusive evidence that daylight in any intensity, or over any period of time, produces cataract.

4. What advertising claims can be permitted?

The primary function of a sunglass is to reduce brightness. The proper and principal claim that can be made is that the sunglass reduces

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**DOW****SOLVENTS****ANNOUNCING CHLOROTHENE NU . . .**

**two-way safety for cold-cleaning anywhere in your plant**

Newly developed Chlorothene® NU combines safety for both plant and personnel, high solvency . . . and an advanced Dow stabilizing system that makes possible greater economy through easy recovery, plus an extraordinary range of cold-cleaning applications.

*Safe two ways!* Low in toxicity, Chlorothene NU has a maximum allowable vapor concentration of 500 parts per million. That's substantially higher than most chlorinated solvents and compares favorably with many flammable solvents. In addition, Chlorothene NU has *no fire or flash point*, as measured by standard methods. Together, these features add a wide margin of safety—for dip, spray, bucket or wipe cleaning operations—on the production line or for maintenance.

The exceptional stability of Chlorothene NU (specially

inhibited 1,1,1-trichloroethane) provides two important advantages for plant operating people. First, it assures a remarkably low corrosion rate, even for corrosion-sensitive aluminum, zinc, and white-metal alloys. And Chlorothene NU cleans other metals, many non-metallic materials besides. The second benefit of high stability is easy recovery—usually with existing equipment. Thus, Chlorothene NU can compare favorably with flammable solvents on a dollars and cents basis.

Ask your distributor of Dow solvents. He has complete information about the safety features of Chlorothene NU and will be glad to explain uses, recovery and comparative cost. Or, contact your nearest Dow sales office.

**THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN**

**SEE YOUR DISTRIBUTOR OF DOW SOLVENTS-FIRST!**



## Who put the knee patch on the thumb crotch?

### Hood—that's who. And here's why:

Workers who grab or push rough or sharp-edged objects wear gloves out quickly at the crotch of the thumb. The gloves had to be thrown away even though there was still plenty of wear left in the rest of the glove.

Hood went to work on the problem and came up with a glove that was reinforced at the spot where the most

wear occurred—much like knee patches are used to protect a boy's britches. These Hood gloves can be used until they're completely worn out—not just partly worn—at a big saving.

A heavy neoprene coating on these gloves protects against chemicals, oils, grease and abrasion. They come in two styles, a 12" gauntlet (7701-P) and a 14½" gauntlet (7703).

Improvements like those made in this Hood glove can be found in other industrial gloves of the Hood line, which includes latex gloves, and gloves coated with neoprene, rubber and Koroseal. Remember, in gloves the name Hood is a *sure* sign they're good. For more information, call your Hood distributor, or contact *Hood Industrial Gloves, Dept. N, Watertown 72, Massachusetts*.

**HOOD** industrial gloves



# WIRE FROM WASHINGTON

By HARRY N. ROSENFIELD

Washington Counsel, National Safety Council

This report is an information service. Publication does not imply National Safety Council approval of or opposition to any legislation mentioned.

PRIOR TO RECESSING for the national political conventions, Congress considered various safety measures.

**Industrial Safety.** The Senate passed S. 3108, as amended, to enable the U.S. Public Health Service to hold public hearings on air pollution problems of more than local significance, and to extend the duration of the Federal Air Pollution Control Act to June 30, 1966. The Secretary of Health, Education and Welfare said that "it is important that the federal government exercise leadership in the development of measures needed for coping with this problem."

The Senate also passed S. 1964, with amendments, to require railroads to report to ICC all so-called "non-train" accidents occurring in the construction, installation, inspection, protection, operation, servicing or maintenance of railroad facilities. The ICC and the railroads opposed the bill. The Senate committee's rationale was "the purpose of accident reporting, i.e., the disclosure of hazards attendant to the operation of a railroad's transportation business in order to effect preventive action. . . . The committee is interested in safety in all railroad operations."

The same committee also reported favorably on S. 1425, as amended, requiring railroads to make rules, subject to ICC approval, for the protection of railroad track cars against collision. The ICC and railway labor organizations favored, but the railroads opposed, the bill. The committee said that "the record of accidents in the operation of railroad track motor cars calls for congressional action," and described the bill as "a safety measure."

A subcommittee of the House Education and Labor Committee re-

ported S. 743 to the full committee, without recommendations. The bill would make the Federal Coal Mine Safety Act applicable to coal mines employing 14 or less persons underground. (See "Wire," June 1960.)

A U.S. Court of Appeals, by a split vote, sustained a contention by three major AFL-CIO unions that the Atomic Energy Commission must make adequate safety findings before it issues a permit to construct a nuclear power station and not wait, as AEC regulations provide, until after the plant is constructed but before it issues a license to operate the plant. The AEC announced plans to appeal this decision which held that the AEC's finding that the plant could be operated without undue risk to public health and safety was clearly inadequate. Any doubt, said the Court, "should be resolved on the side of safety."

The AEC's brief to the Court argued in part: "The possibility of [a major accident] cannot be categorically excluded. If the statute and regulations are to be interpreted . . . so that the Commission must be *certain* that an accident will never occur, then no developmental reactor

would ever be built." The suing unions relied on an opinion of AEC's Advisory Committee on Reactor Safety that the type of reactor involved was "inherently unsafe."

The AFL-CIO urged Congress to enact a "drastic" overhaul of the provisions of law authorizing states to assume responsibility for radiation hazards. (See "Wire," October 1959.)

The International Labor Organization, at its 44th Conference, adopted a convention providing minimum protections to employees against radiation (including maximum allowable doses), and a recommendation on how to assure observance of the standards.

The AFL-CIO held its second National Conference on Safety and Occupational Health, and focused its attention on four specific hazards: radiation; poisoning from chemicals and metals; noise; and eye injuries.

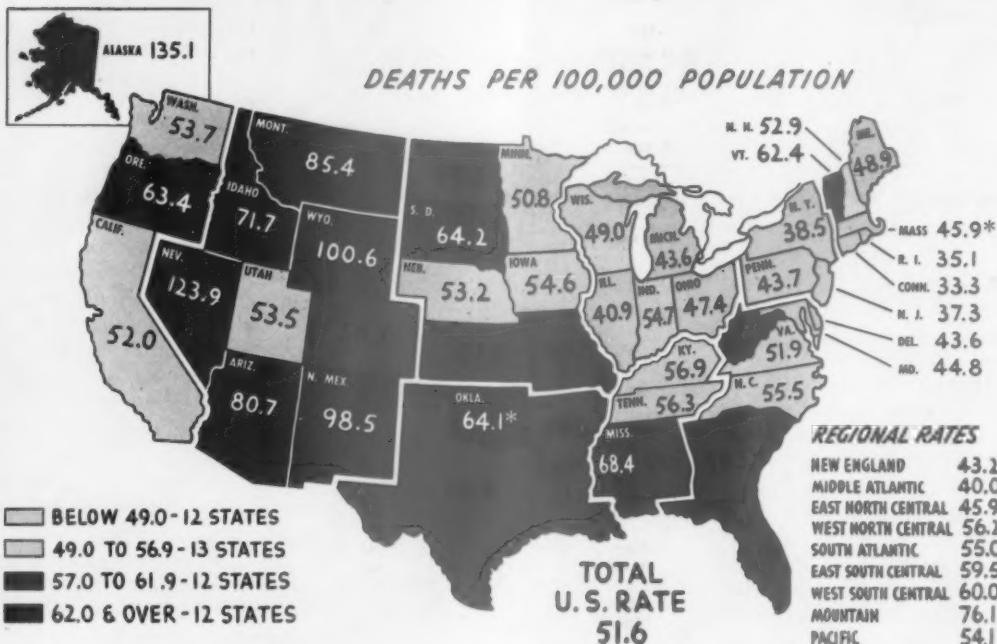
**Traffic Safety.** The Congress passed H.R. 5436, as amended, and sent it to the President for signature. The bill provides for a federal register of names of persons whose motor vehicle operator's license or permit had been revoked because of (1) driving while intoxicated, or (2) conviction of a violation of a highway safety code involving loss of life.

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## THE MONTH IN WASHINGTON

- Senate passes bill to require railroads to report to ICC all non-train accidents.
- A U.S. Court of Appeals sustains contention by unions that AEC must make adequate safety findings before it issues permit to construct nuclear power station.
- ILO at 44th conference adopts a convention providing minimum protection to employees against radiation and a recommendation on how to assure observance of standards.
- Congress passes National Capital Transportation Act to aid in development of improved transportation system for District of Columbia.
- Senate passes bill to enable U. S. Public Health Service to hold public hearings on air pollution problems of more than local significance and to extend Federal Air Pollution Control Act to June 30, 1966.

## ACCIDENTAL DEATH RATES BY STATES



Source: Reports from State Health Departments

\*Partly estimated

# 91,000 Fatalities in '59

**Totals up 400 from record low of 1958**

**By J. L. RECHT**

Senior Statistician, Statistical Division,  
National Safety Council

THE 1959 accident death total was approximately 91,000—about 400 more than the 1958 death toll of 90,604.

Disabling injuries numbered about 9,200,000, including 350,000 which resulted in some degree of permanent disability—ranging from partial loss of use of a finger to blindness or complete crippling.

This summary of the accident experience of 1959 is based on *Accident Facts—1960 Edition*, the Council's annual compilation of essential information about accidents.

Disabling injury totals for the principal classes of accidents were:

Motor-vehicle, 1,400,000  
Public non-motor-vehicle, 2,050,000  
Home, 3,900,000  
Work, 1,950,000

Duplications of motor-vehicles with other classes numbered about 100,000. Death totals are given in the accompanying table.

Accident costs amounted to about \$13,000,000,000. This includes:

Wage loss, \$4,000,000,000  
Medical expense, \$950,000,000  
Overhead costs of insurance, \$2,850,000,000  
Property damage in motor-vehicle accidents, \$2,100,000,000  
Property loss in fires, \$1,047,000,000

"Indirect" costs of work accidents, \$2,100,000,000

The trend from 1958 to 1959 showed a small rise. Increases in motor-vehicle and work deaths were nearly offset by a decrease in home fatalities.

The death rate in 1959 per 100,000 population was 51.6—the lowest rate on record. The next lowest rates are 52.3 for 1958 and 55.9 for 1954.

Present indications are that in 1959, as in earlier years, accidents were the fourth most important cause of death, exceeded only by heart disease, cancer, and vascular lesions of the central nervous system.

Accidents were the leading cause

of death among persons 1 to 36 years old (according to the latest detailed information, 1958). Among males alone accidents ranked first from age 1 to age 37.

Accident types that were most important in 1959 were motor-vehicle accidents and falls with 42 per cent and 20 per cent, respectively, of the death total. Fire, burns and injuries associated with conflagrations caused 8 per cent of the deaths, and drownings another 7 per cent.

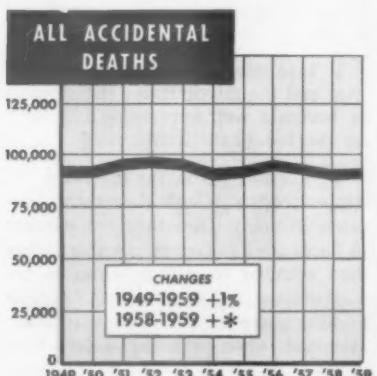
In 1908 to 1912, the five years preceding the formation of the National Safety Council, the average accidental death rate was 83 per 100,000 population. This was divided roughly into rates of 2 for motor-vehicle accidents and 81 for non-motor-vehicle accidents.

By 1959 the non-motor-vehicle accident rate had dropped from 81 to 30. This record of successful accident prevention work was partly concealed by the increase in the motor-vehicle death rate from 2 to 21, resulting from the great increase in the use of motor vehicles.

Death totals by age groups in 1959, and changes from 1958, based on the Seventh Revision of the International Statistical Classification of Causes of Death, follow:

Age	1959	1958	Change
0 to 4	8,700	8,789	-1%
5 to 14	6,500	6,514	0%
15 to 24	13,300	12,744	+4%
25 to 44	19,600	19,658	0%
45 to 64	18,700	18,095	+3%
65 and over	24,200	24,804	-2%

Since the ten years 1903 to 1912 the greatest progress in accident prevention has been made among children under 15 years of age. The 15 to 24 and the 65 years and over age groups have shown the least improvement.



The 1959 death rates per 100,000 population for each age group are shown below and are compared with the corresponding 1903-1912 rates.

Age	1903-12	1959	Change*
0 to 4	95.0	44.0	-53%
5 to 14	41.8	18.5	-56%
15 to 24	64.6	56.1	-13%
25 to 44	83.2	42.1	-49%
45 to 64	104.1	52.2	-49%
65 and over	272.4	157.4	-33%

\*Adjusted for 1948 Revision in Death Classification List.

The latest detailed information

available (1958) showed motor-vehicle deaths as 20 per cent of the 0 to 4 years accidental death total and mechanical suffocation deaths as 17 per cent. In the 5 to 14 year group, motor-vehicle deaths were 42 per cent of the total and drownings 21 per cent.

For persons 15 to 24 years old motor-vehicle deaths were 66 per cent of the accidental death total and drownings were 12 per cent.

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#### THE NATIONAL ACCIDENT FATALITY TOLL

	1959	1958	Change
ALL ACCIDENTS	91,000	90,604	+*
Motor-vehicle	37,800	36,981	+2%
Public non-motor-vehicle	16,500	16,500	0%
Home	26,000	26,500	-2%
Work	13,800	13,300	+4%

Note: The motor-vehicle totals include some deaths also included in the work and home totals. This duplication amounted to about 2,800 in 1958 and 3,100 in 1959. The 1958 all-accident and motor-vehicle death totals are the official figures of the National Office of Vital Statistics. All others are N.S.C. estimates.

\*Increase less than half of 1 per cent.

#### CHANGES IN ACCIDENTAL DEATHS, 1958 TO 1959

Type of Accident	Total Deaths	Deaths 100,000 Persons	Change in rate from 1958
Motor Vehicle	37,800	21.4	0%
Falls	18,200	10.3	-2%
Fires, Burns	7,100	4.0	-5%
Drowning	6,400	3.6	-5%
Railroad	2,350	1.3	-7%
Firearms	2,200	1.2	-8%
Poisons (except gas)	1,400	0.8	0%
Poison gases	1,100	0.6	-14%

#### DEATHS AND DEATH RATES OF WORKERS BY MAJOR INDUSTRIES, 1959

Industry Group	Total Deaths	Deaths per 100,000 Workers	No. of Workers Per Death
Trade	1,200	9	10,900
Manufacturing	1,900	12	8,600
Public Utilities	200	14	7,250
Service	2,600	14	6,900
Transportation	1,300	48	2,100
Agriculture	3,400	59	1,700
Construction	2,500	77	1,300
Mining, quarrying, oil and gas wells	700	100	1,000



Figure 1. Checking portable electric drill for insulation resistance. Above: close-up of device used for testing.

## A New Look at

By W. E. MESH, P. E.

# ELECTRICAL GROUNDING

**When job conditions are not ideal, it takes more than a 3-conductor cord to insure safety**

A PUZZLING PROBLEM in industry is to determine the most effective way to ground electrical equipment to protect personnel from electrical shock.

The National Electric Code (NEC) has explicit rules in certain areas, such as grounding of permanently installed motor frames and electrical services. It does not, nor was it intended to, cover such situations as laboratory bench setups and production test setups.

Industry, in general, has followed code recommendations such as using

3-wire cords, plugs, and receptacles to provide an equipment ground connection. In some instances, "grounding everything in sight" has resulted, without too much thought on whether or not new problems were being created.

The normal practice of grounding such devices as electric drills by a 3-conductor cord constitutes safe practice when conditions are ideal. Too often, conditions are not ideal and these faults arise:

1. The grounding conductor is in-

correctly connected, or not connected at all.

2. Insulation between the 120-volt wire and the motor frame deteriorates or becomes wet, impressing 120 volts on the hand-held frame.

3. Circuit breakers are slow in tripping when a fault does occur, because in many cases they are selected to be as trouble-free as possible rather than selected to trip as close to instantaneous as is practical. Circuit breaker curve selection warrants closer attention, when personnel safety is of primary concern.

In the United States the philosophy of fuses and circuit breakers is to use them to protect equipment and not personnel. In Great Britain a broader concept is employed to include protection of people. Although the latter concept may entail spending a few more dollars for a circuit breaker that will trip fast enough to do some real good, it is perhaps the better approach towards protecting personnel.

Circuit breakers are available on the market that will trip according to practically any curve (time versus current) desired. The circuit breaker curve should match the requirement. Too often, the same type of breaker is used throughout the factory.

Circuit breaker for laboratory bench use can be selected to trip in a few seconds to provide utmost protection, whereas circuit breakers designed for motor applications must be able to carry higher "starting" currents for a short period. This starting current may be 300 per cent of running current. If such a circuit breaker is used in a laboratory bench setup, a 20-ampere breaker can carry a 40-ampere overload for 40 seconds without tripping.

**Ingredients of an Accident.** An accident has been defined as "an un-

planned, noncontrolled, undesirable event which interrupts an activity or function."<sup>1</sup> An accident is usually made up of a chain of events which take place in sequence. If one link of the chain is broken, an accident can be prevented. If two links of the chain are eliminated by planning, designing, or training, two additional safety factors are established. In considering lethal voltages, elimination of a single link in the chain is not sufficient.

What is the chain of events that leads to a fatal accident, and what are the safeguards that can be utilized? Let's consider the problem of an operator using an electric drill.

In case of insulation failure (1) a voltage (2) with respect to ground (3) may be impressed on the metal case (4) which, when in combination with contact to ground (5) can be lethal. The chain, in this case, has five steps. All five steps generally have to occur to complete the accident. To provide safe operation, several safeguards should be taken.

The first step should be to maintain proper insulation resistance. Available equipment enables the operator to check insulation resistance on portable tools in a few seconds. All portable tools should receive this test before they are released

from the tool crib. This is the first line of defense—one that should not be overlooked.

The next step to be considered is the metal case of the drill held in contact with the hand. A further personnel safety factor would be provided if such cases were made of insulating material. Glass-filled plastic, such as that used in crash helmets, would be entirely practical.

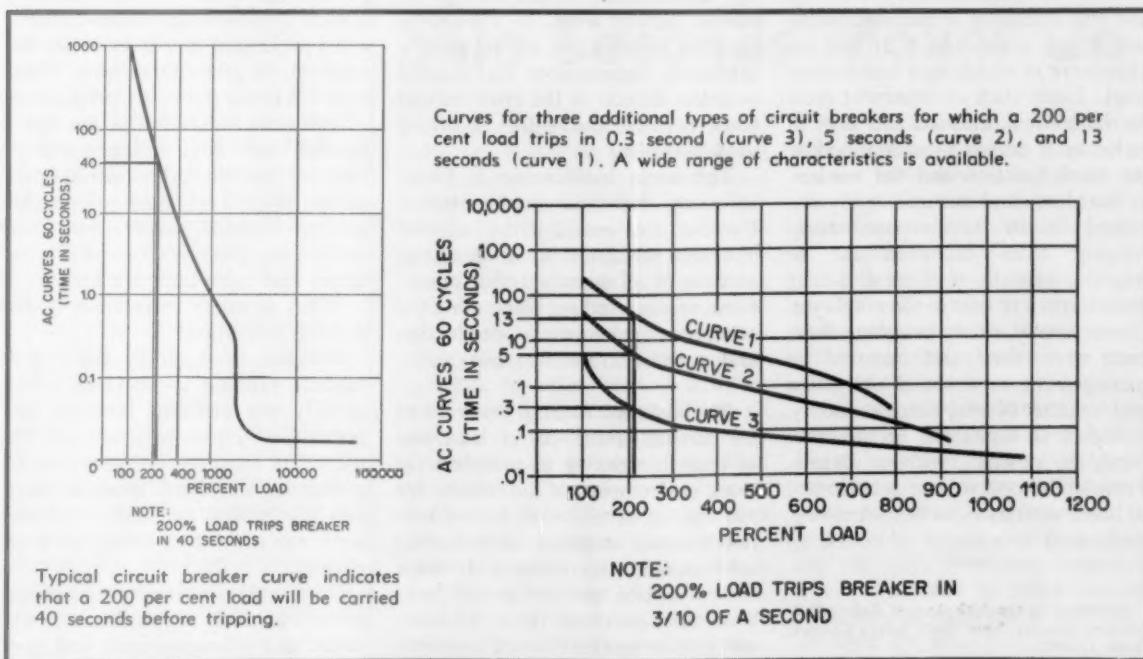
The third step in acquiring personnel safety, when using the electric drill, is to eliminate contact with ground. This is sometimes possible by utilizing dry boards for floor insulation. In cases where the operator is drilling grounded metal, it becomes impossible to eliminate contact with ground unless the drill is provided with an insulating case.

If the case is metal, it's obvious that it should be properly grounded. If the work is being done in a wet or hazardous location, a low-voltage drill should be used.

**An Ideal Approach.** The experienced TV repairman has developed a mode of operation for personnel safety which provides some significant advantages. He tries to utilize as many safety factors as he can. In the first place, he attempts to set up his work on a dry, insulated wooden bench and floor. If he has

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<sup>1</sup>Russell DeReamer, *Modern Safety Practices*, John Wiley & Sons, Inc.



Both sanitation and protection for the operator must be considered in designing bakery machinery. Guarding and accessibility for cleaning must be reconciled. Light finishes for machine said visibility and encourage cleanliness. Position switch for the cover and double pushbutton control are safety features.



## Sanitation Is Fundamental

A clean, orderly work environment is essential in all manufacturing operations as well as in accident prevention

By J. LLOYD BARRON, C.E.

Director of Sanitation, National Biscuit Company, New York

MANY OF YOU as safety directors, and I as a director of industrial sanitation, are concerned with the environment in which men and women work. Every such environment must be maintained, cleaned and kept in order or it ceases to accommodate the work function and the worker.

Accidents and occupationally impaired health have consequences ranging from inconvenience to tragedy. Morally and legally, they are a burden of cost to the employer. Consequently, safety programs have been dramatized and imposed on management as a social obligation and a matter of long-range economy.

Industrial sanitation, on the other hand, is prosaic, without drama. From childhood we are accustomed to home sanitation, or housekeeping, performed as a matter of course by

the homemaker. When we go to school, factory work, to a hotel or an office building, we are apt to take sanitation maintenance for granted —unless defects in the environment cause personal discomfort or offend us esthetically.

The same indifference is found in many industrial managements. But that does not alter the fact that industrial sanitation is a fundamental element of all manufacturing operations, serving and supplementing the other basic elements — production and mechanical maintenance.

**Big business.** Among every 20 to 30 persons employed, at least one of them is working to maintain the work environment of the others. We are talking in terms of 3 to 4 million persons engaged in industrial sanitation in this country. If these 3 or 4 million persons stayed away from their jobs tomorrow, the other 60 million workers could probably

go through a day's work without critical consequences. With the situation prolonged into days or weeks, work would generally grind to a halt or cease being profitably productive.

Industrial sanitation is not spectacular, but it is fundamental to business, service and industrial operations. Such work warrants organization, capable supervision and careful integration, especially in its larger and more complex forms.

What is safety in relation to industrial sanitation?

Without downgrading safety, it is entirely rational to say that safety is only one element, however important, of industrial sanitation. To the safety engineer, the problems of preventing accidents loom so large and compelling that they may obscure the context in which his work is done.

This same preoccupation with acute and costly accident factors extends to top management and may

Presented at the 30th Annual Safety Convention, Greater New York Safety Council, April 1, 1960.

monopolize much of the limited attention it gives to the work environment. Certainly, the record of management concern for safety is a voluminous and, on the whole, a creditable one. To it, governmental agencies, the courts, insurance companies, the National Safety Council and many local safety councils, and other organizations have given valued support.

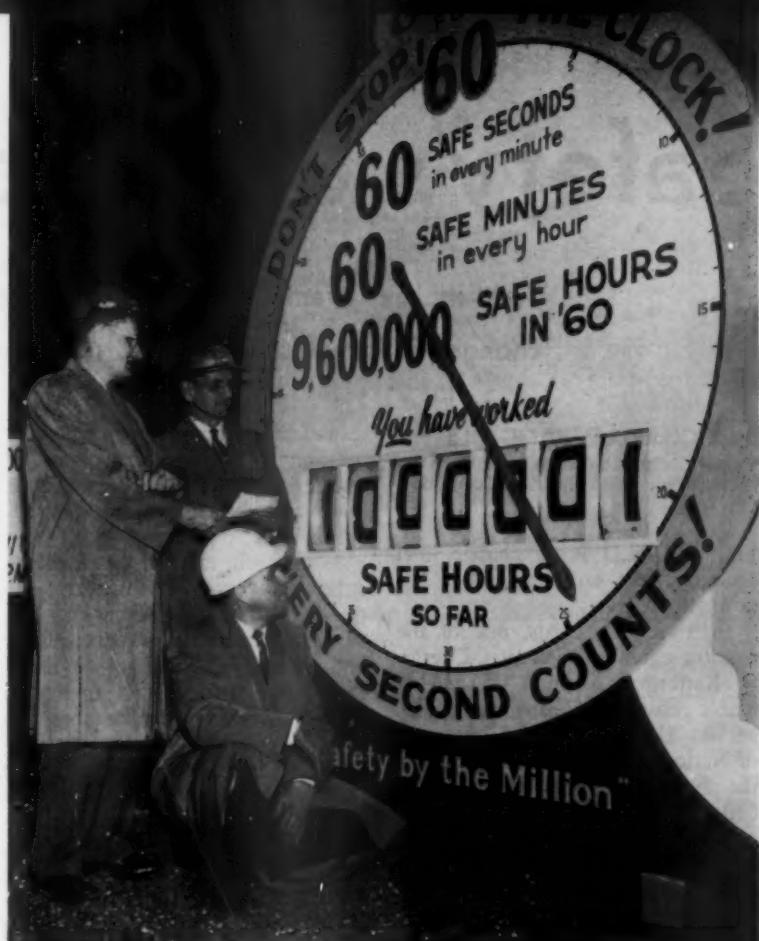
But with all this concern for employee safety, is it possible that top managements, safety directors and interested agencies have overlooked the contributions that a well-organized industrial sanitation function can make to safety? It would seem to me that any person having an administrative responsibility for industrial safety would be vitally concerned with the way in which the work environment is maintained.

**Confusion of functions.** In many industrial operations the general practice is to lump industrial sanitation in with the general function of machine maintenance and utility operation, without recognizing that these are fundamentally different in character. Is there any basis in normal human behavior warranting the belief that a person trained and assigned the duty of keeping production machines running will so divide his interest and energy as to deal effectively with industrial sanitation at the same time?

If the plant engineer has the combined maintenance responsibility, it is altogether likely that he will assign some of the sanitation duties (those of least interest to him) to a subordinate, so this service function becomes an adjunct of an adjunct of production. To many executives this may seem a logical arrangement, but proof of its ineffectiveness is to be found in the dirty and disorderly work environments of many plants, large and small, where both types of maintenance are lumped under a single supervision.

The safety director who finds reason to be critical of working conditions in his plant should examine the line and level of authority held by those supervising maintenance of the work environment. It is almost axiomatic that low level supervision will produce low level results. To have this situation well analyzed

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Witnesses watch as safety clock at E. I. DuPont de Nemours & Co., Inc., Chambers Works at Deepwater Point, N. J., ticks off the first million man-hours out of two-million man-hours plus without a disabling injury on the job.

## Safe Seconds Mount Up

Dramatizing more than two million man-hours on the job without a disabling injury, a mechanical safety clock at DuPont's Deepwater Point, N. J., Chambers Works is packing the firm's 1960 Safety by the Million campaign with suspense.

This clock has a sweep hand to stress second-by-second alertness against hazards. Accumulation of injury-free hours registers visually on the bottom third of the clock through a device activated by cammed drums geared to add one man-hour each second.

Prior to May "Big Ben" had been run at speeds adjusted for each shift. Now a constant average speed is used throughout the 24-hour period, with daily adjustment to correct for minor fluctuations in work-hours.

The clock also rings out the hours and at noon sounds Westminster chimes to remind everyone in earshot against momentary lapses reported responsible for a large part of the firm's mishaps.

To provide fresh impact to observers on each of the operation's shifts, the clock is switched systematically from one location to another in the plant.

As an added feature, employees are eligible for prizes in a Million Hour Prediction contest, celebrating the passing of every million man-hours of injury-free work at the plant. The entrant closest to guessing the day, hour and minute at which this mark is noted can win such awards as a clock radio or a portable TV set.

# Safety's Ups and Downs

World-shaking events and economic upsets that bring changes in peoples' lives affect accident frequency

By RICHARD E. FAGGIOLI

Manager, California Area, Humble Division, Humble Oil & Refining Company.

THE WORLD hates change. Yet change is the only thing that has brought progress.

In those apt words, one of the country's greatest idea men, Charles F. Kettering, summed up one of man's most bewildering paradoxes. Melvin H. Baker, board chairman of National Gypsum Company, told the National Safety Congress in Chicago last October: "Progress and status quo are incompatible . . . this will be especially true in the 1960's, and we will have change like we never have had before."

No one questions that this decade will exert a tremendous impact on our economic world and cultural life and we must be prepared for this tremendous change. As members of an industry vitally interested in safety, we must prepare for effects this expected change will have on human safety. But first let's attempt to determine how changing economic conditions may have affected industrial safety over the last 30 or so years.

The first chart shows us a graph of the frequency rate of industry accident experience for the period 1926 to 1959. While it is rewarding to note a marked over-all decline in the rate, there are some prominent reversals of this trend which we should attempt to explain. In the late 1920's, industries of the United States first began to demonstrate an appreciation of industrial safety; the first statistics of the National Safety Council are recorded for 1926. Whether the marked decline in frequency rate till 1928 was due to this attitude entirely we can only surmise, but it is consistent with

From an address before the Western Oil and Gas Association, San Joaquin Valley Oil Industry Safety Conference, Bakersfield, Calif., March 1960.

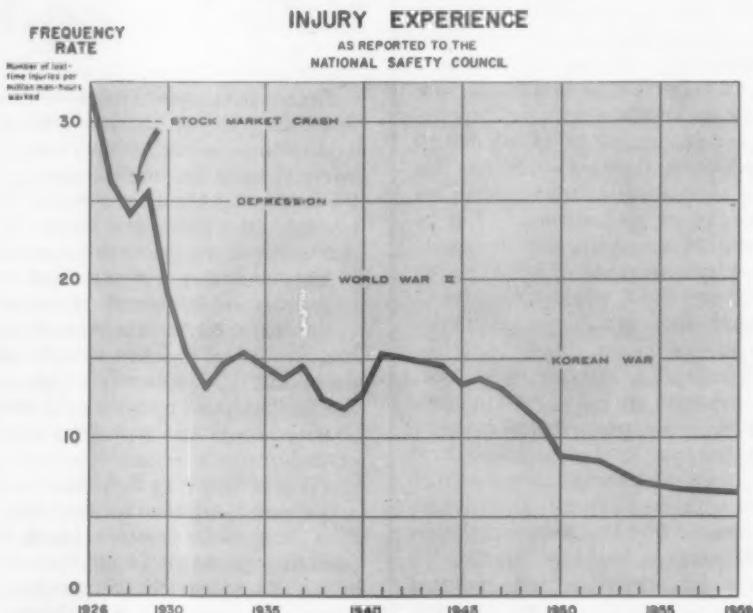
recent experience that immediately following a new safety program or development of a new safety attitude there is marked improvement in accident rates.

What, then, may have caused the striking reversal of this desirable trend in 1929? We know that the stock market crash and the resultant panic in the lives of so many people brought fear and anxiety to a high level. We can assume this emotion could have a profound effect on accident experience. After this interruption of the curve, the desirable experience again prevailed until 1932 when again the curve reverses for about two years. In 1932 we had reached the depths of the Great Depression; associated closing of the banks had a startling effect on our morale; equipment in factories was becoming older without economic ability or incentive to replace it; worry continued as a considerable element in our everyday lives.

By 1938 times appeared to be much better and again improvement in accident frequency resumed, but in 1939 the most prominent reversal of this trend occurred—World War II had started. The general economic level continued to rise but again there developed a disturbing accident frequency. Here, then, we note a reversal on the chart where a depressed economic situation is obviously not the cause, but there was a disturbing change which was surely affecting human emotions. By 1940, total employment, including large numbers of little-trained personnel, had mounted and the entire emphasis was on production. This was not a condition conducive to good safety experience.

Shortly after our entry into the war in 1941, the government, alarmed by the industrial safety problem and the wasted productivity attending accidents, instituted a comprehensive industrial safety ef-

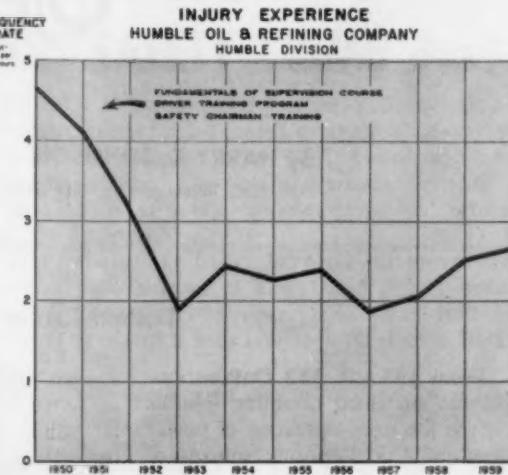
THE NATIONAL PICTURE, 1926-59



## THE CALIFORNIA OIL INDUSTRY



## A LARGE OIL COMPANY



fort which appears to have been rewarded by a markedly improved accident record for several years. It is interesting to note that the next reversal in trend, occurring right after 1945, was during the post-war or "reconversion period" when economic and social readjustments were somewhat difficult and were frequently affecting our daily lives. The accident experience resumed a desirable trend, interrupted only slightly in 1950; this coincides with initial deep concern with the Korean war. Up to 1958, while the rate of reduction declined, the total frequency experience trend continued favorably.

Coming closer to home, let us look to the second chart for the experience of our California oil industry for the last 10 years. At the end of 1951, we can see a striking increase in frequency. This may be from poor safety attitudes spurred by the emotional effect of the Korean war; the general economic level was not markedly changed. Concurrent with the first Western Oil and Gas Association safety conference in 1953, our industry enjoyed a prominent and commendable decrease in accident frequency and the down-trend persisted until the end of 1958.

Our satisfaction in this accomplishment has been dimmed by preliminary figures for 1959 obtained by our association from seven integrated West Coast companies. An

alarming trend is suggested: the frequency rate has increased 17 per cent during the past year, with the severity rate up a frightening 49 per cent! Applying a standard measure of direct and indirect costs (\$125 per man day for over 82,000 man days) assignable to these accidents, we can predict a total of \$9,800,000 will have been lost to the petroleum industry due to accidents in 1959, an increase of about \$3,200,000 over 1958. In the times of economic strain in our industry when tightening our belts has been the rule of the day, we can ill afford this waste of capital; as safety-conscious supervisors, we cannot tolerate this blow to human safety. What caused this unfortunate trend?

While it is true that we held fewer safety conferences last year, we can hardly place the blame there. What about the economic climate in which we have been working recently? What about the effect of attendant reductions in drilling and production; reorganizations; personnel reductions; mergers? How have these affected safety? It has been demonstrated that changes in the economic and emotional climate can affect safety attitudes. It would appear that last year the disturbing changes experienced by personnel of the California petroleum industry resulted in the alarming rise in the accident frequency rate.

It is obvious that all industries will not be affected in the same

manner by a given change, and within the oil industry various companies will not react to the same degree. How disturbing a change will be depends on how directly it affects the individual company and its employees. A segment of the petroleum industry in one producing area of the United States may experience a change more quickly or severely than one located in another part of the country.

Other factors are continually affecting the attitude of employees; these would include safety programs, orientation programs and other communications designed to improve our working climate and productivity. If successfully applied, these programs could be expected to diminish the adverse trend we would now predict as accompanying periods of change.

Let's look at a particular organization, the Humble Division of Humble Oil & Refining Company. Its accident frequency over the last 10 years is plotted on the next chart. During the period 1949 to 1952, this company enjoyed a rewarding accident rate, whereas other segments of the industry were suffering from an increase in rate. There appear to be good reasons why this occurred. During this period three programs were presented and strongly emphasized in the Humble Company. A course was given all supervisors covering

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# OFF THE JOB

Safety programs for plant and community

By HARRY C. JOHNSON

NSC Staff Representative, OTJ Safety Committee

## DuPont Battles Power Mower Accidents

From 1953-58 112 DuPont employees sustained disabling injuries off the job from operation of power lawn mowers. Reported sources of injury were: 7—slipped (grass wet in most cases) and foot contacted rotating blade; 10—pulled mower over foot; 11—starting mower; 13—adjusting or working on mower with motor running; 27—object thrown (many leg injuries were due to this).

These mishaps resulted in 25 injuries to the hands and fingers, 5 to the eyes, 48 to the toes and feet, and 25 to the legs. Nine of these cases weren't listed as to the nature of injury.

Consequently, the DuPont safety program includes information and reminders on mower safety, a campaign that is reducing the six-year toll mentioned here.



This mower is a killer. An operator was killed by current from the defective cord. Much of the insulation was cracked, exposing the bare wires. The cord had been patched with friction tape in several places. The machine had been designed for a three-wire extension cord, but was not equipped with it.

## Don't Overload or Under-Equip Your Boat



Overloading a boat or under-equipping it with safety gear can be the formula for disaster. An overloaded boat rides deeper in the water and is more apt to swamp. Most boat builders put a plate on their product, stating capacity. And don't move a boat unless there's a U. S. Coast Guard-approved life preserver or jacket for each passenger.

## Homemade Poster Gets Results at Deere & Company

Developed by a woman employee in the General Service Department of Deere & Company, Moline, Ill., this poster's catchy slogan and eye appeal resulted in much comment—and safe attitudes—by holiday-bound workers. T. A. Kraklow, safety director of the firm, considers this poster to have been very effective in reduction of off-job accidents at Deere & Company during this period.

## DON'T BECOME A MEMORIAL



ON  
DECORATION DAY



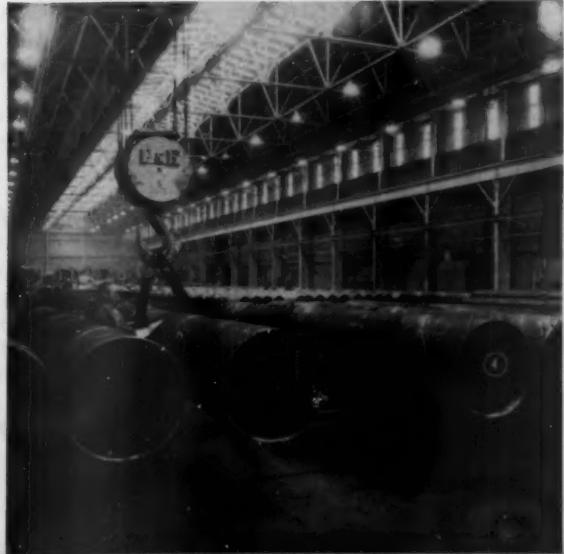
# CAN YOU SOLVE THIS "SAFETY CRIME"?

INGENUITY isn't a patented product, and safety programs thrive on it. Armco Steel Corporation's *Arm-co-operator*, recent recipient of an NSC Award of Merit for Exceptional Service to Safety, dramatizes provocative imagination at work in presenting its picture puzzle, the "safety crime."

1. Andy the crane leader prepares to move the heavy steel pipe in front of him. Using proper hand signals, he orders the crane operator to lower the belt sling (one end of which he is holding). At right is Dave the recorder.
  2. Both ends of the belt are secured to the crane hook. Then Andy asks Dave to stand away from the pipe. This is done so Dave will have plenty of room to get out of the way, should the pipe move toward him when it is lifted.
  3. With Dave a safe distance away, Andy signals for the crane operator to lift the pipe. Andy has already checked to make sure the belt is around the middle of the pipe. It will tilt like a see-saw, if not balanced.
  4. As the pipe is lifted, it instantly pins Andy against the one in back of him. He is seriously injured under the rib-crushing weight. How did it happen? Who was to blame? The answers can be found in the box.

Hero's the Answer

Andy should have heeded his own advice to Dave by making sure he had enough room to get out of the way. However, the real cause of the accident was the result of still another mistake he made earlier. See how the belt sling is hanging in front of the pipe? The crane operator misinterpreted the signal from the lift instead of the hook shot he was given.



Applying fluorescent paint to a diesel yard engine at the Westinghouse Steam Division plant. The blaze orange color and fluorescent action result in high visibility.

# PAINT THAT'S ALERT

**Objects highlighted with fluorescent paint at this big Westinghouse plant can be seen twice as far as those painted with regular paint**

THROUGHOUT the big plant of Westinghouse Electric Corporation's Steam Division at Lester, Pa., you will find spots of vivid blaze orange paint. It has been applied scientifically and with a purpose. By day it makes obstacles stand out at much greater distances by its fluorescent action. At night it glows when illuminated by light beams.

Posts, corner bumper plates, guard rails, abutments, fire hydrants and valves for fire-fighting water have been painted with fluorescent paint. Diesel locomotives used for yard switching have been striped with it. Other applications for plant and yard are planned.

"It's an alert type of paint," says Charles R. Hautz, assistant supervisor of Works Engineering. "We get requests from people in many parts of the plant for use of this paint. For example, we have been asked to use it on signs and valve handles in the tank farm. We are planning to use more of it."



So far, most of the applications have been to objects around the grounds of the sprawling plant which occupies a 495-acre site and employs about 8,500 persons. The plant is in operation around the clock.

At Lester, Westinghouse manufactures small, medium and large turbines for many applications, including power-generating plants of electric utilities and for the propulsion of Navy ships. It also makes land gas turbines and heat exchangers.

How did Westinghouse come to use fluorescent paint?

Hautz reports that its increasing use on planes at the nearby airport had been noticed and the high visibility of those colors, even in poor light, was impressive. Other products previously tried had been most effective at night but none proved as effective as fluorescent paint in improving visibility in the daytime.

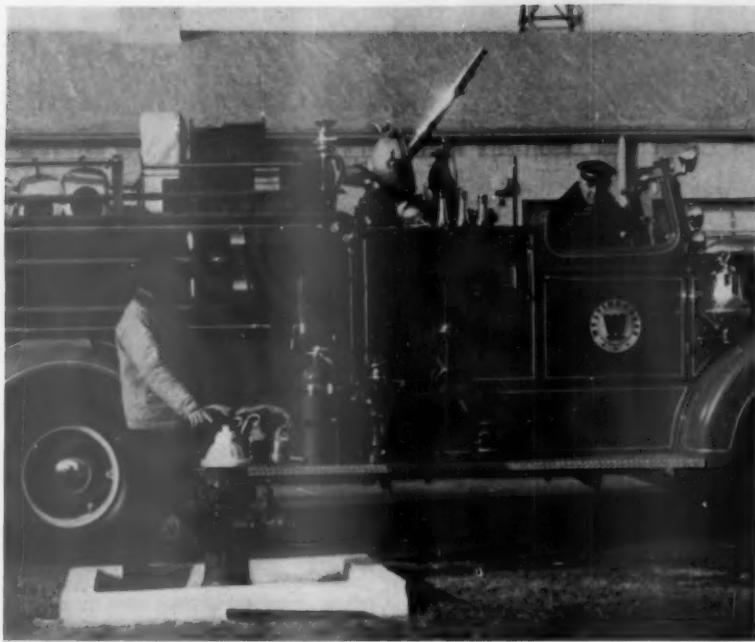
**Methods of application.** The paint

used at the Lester plant is an alkyd enamel, manufactured by Switzer Brothers, Inc., Cleveland, Ohio. Blaze orange was selected from the five available colors because of its high visibility. Fluorescent colors are also available in fast-drying acrylic lacquers for spray application.

On top of the fluorescent coating Westinghouse applies a clear over-coating that filters out the ultraviolet rays of sunlight that would cause premature fading of the color.

The overcoating, known as "Filertay" (also made by Switzer), is made in two types. One affords maximum resistance to solvents, cleaners and many lubricants. The other is used where exposures are less critical and brush application is preferred. The latter type is used at the Lester plant.

The final surface has a higher gloss than the fluorescent finish alone. It is more resistant to wear and more easily cleaned.



Fire Chief Howard T. Clark points out top of hydrant painted with fluorescent paint to Edwin B. Miller, fire inspector. Tops of all fire hydrants and divisional valves controlling loops around the plant for fire-fighting water have been similarly painted.

Fluorescent paints are brightest when applied over a clean white surface. The priming system should be compatible with conventional alkyd enamels or acrylic lacquers.

Most surfaces painted with fluorescent coatings at the Westinghouse plant are metal or concrete. Previously, metal surfaces had been coated with aluminum paint while concrete was left unpainted.

Before painting, surfaces are wire brushed and sometimes sandpapered.

Next, a single coat of a good outside white primer (usually MAB primer, manufactured by M. A. Bruder) is applied by brushing and allowed to dry for at least 24 hours.

The surface is then ready for the fluorescent paint. A heavy coat is brushed on and allowed to dry for 24 hours. Finally, the clear light-filtering top coat is applied by brushing.

The fluorescent paint and the white primer are thinned with tur-

pentine and the clear top coat with mineral spirits, as recommended by the manufacturer. Westinghouse painters have found that a pure bristle brush not more than two inches wide is most satisfactory for the work.

Most of the objects have been painted for more than a year, and so far repainting has not been necessary.

**Fire protection.** Fire Chief Howard T. Clark, a veteran with 38 years' service at the Steam Division plant, is enthusiastic about fluorescent paint.

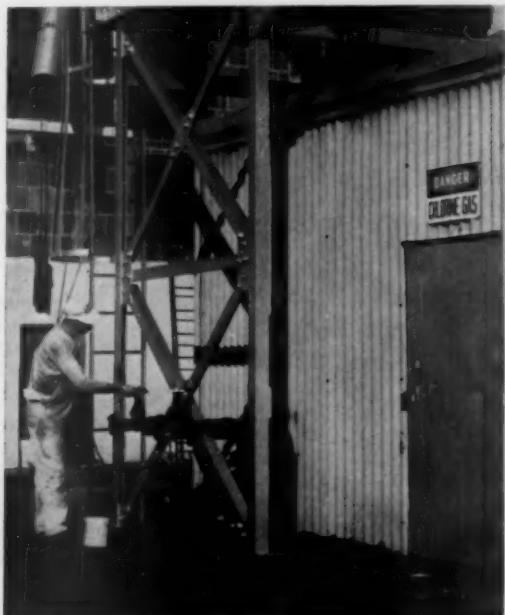
"It really shows up when our headlights hit it at night," he says. "Stripping the abutments helps us to get around faster with the trucks."

The plant fire department has two trucks. These pumper trucks are of 750-gpm capacity. One is a Mack triple combination, equipped with CO<sub>2</sub> apparatus and high pressure lines capable of taking up to 600 psi. It also

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Valve handles painted with fluorescent paint can be spotted quickly in an emergency. A clear top coat protects the fluorescent paint against sunlight.

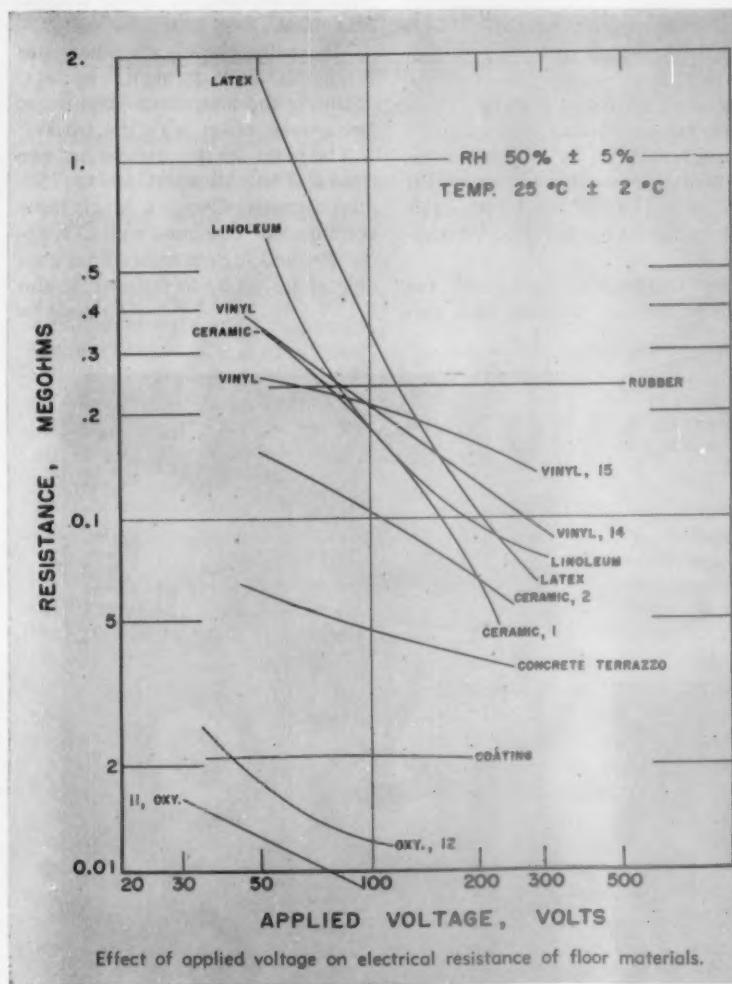
Indicator posts at each of the 40 sprinkler shutoff valves are coated with fluorescent paint which makes them visible at a greater distance. It is an extra safeguard for both the valves and plant traffic.





Conductive flooring materials being tested for characteristics and performance by the National Bureau of Standards. At left is a pedestrian traffic test ramp installed in an office building.

## Conductive Flooring Meets Service Tests



**CONDUCTIVE FLOORING** is as serviceable as nonconductive flooring of the same type, and it reduces explosion hazards, according to a recent National Bureau of Standards investigation sponsored jointly by the Army, Navy, and Air Force. The Bureau also found that current methods for measuring the resistance of installed conductive floors reasonably simulate the conditions these floors meet in service.

Although the flooring was investigated primarily for use in hospital operating rooms, many of the results obtained should apply equally well to floors that are used in other locations, such as munition plants or storage depots for explosives.

Explosive vapors are often present in hospital operating rooms. If static electricity is allowed to accumulate, it can cause sparks having sufficient energy to ignite these vapors. The most effective means for reducing this hazard is to keep the electrical resistance between objects in the area so low that the minimum sparking voltage (about 400 v) is never attained. Conductive flooring provides the necessary linkage because most objects normally rest or move upon the floor.

Electrical resistance of flooring material is generally lowered by adding carbon black which is produced by thermally decomposing acetylene gas under carefully controlled conditions. Carbon black is dispersed in the mixes that are shipped for on-the-job composition of latex, concrete terrazzo, and the setting bed for the ceramic tile. On the other hand, the carbon black is dispersed during manufacture in ceramic, linoleum, rubber, and vinyl flooring.

**Testing Method.** Specifications and measurements of flooring resistance are usually made according to the method recommended by the National Fire Protection Association (NFPA). According to this method, resistance is measured by means of a 500-v ohmmeter connected to two similar electrodes that simulate footwear and conductive rubber objects.

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for



# DISTINGUISHED SERVICE

Winners of National Safety Council  
Awards for outstanding records

## TYPES OF AWARDS

FOUR TYPES of awards are given by the National Safety Council to members for outstanding achievement in accident prevention.

### 1. Award of Honor

Available to (a) units which complete 3,000,000 man-hours without a disabling injury, and (b) units whose records, though not perfect, meet exacting standards. These standards take into account the previous experience of the unit as well as the experience of the industry in which it operates. A unit must qualify on both frequency and severity rates.

### 2. Award of Merit

Has similar but less exacting requirements. Minimum number of man-hours is 1,000,000.

### 3. Certificate of Commendation

For injury-free records covering one or more calendar years and totaling 200,000 to 1,000,000 man-hours.

### 4. President's Letter

For injury-free records covering one or more calendar years and totaling less than 200,000 man-hours.

*Details of eligibility requirements may be obtained by writing to Statistics Division, National Safety Council.*

## AWARD OF HONOR

American Airlines, Inc., Boston.  
Appleton Electric Co., Chicago.

Avco Mfg. Corp., Nashville, Tenn.,  
Plant.

Borg Warner Corp., PESCO Products  
Div., Bedford Hts., Ohio.

The Budd Co., Hunting Park Plant,  
Philadelphia, Pa.

Canada Cement Co., Ltd., Hull,  
Que., Canada.

Columbia Southern Chemical Corp.,  
Barberton, Ohio.

Consolidated Water & Paper, Ahda-  
wagan Paper Prod. Co., Wis. Rapids,  
Wis.

Ford Motor Co., (12): Central  
Parts Depot, Livonia, Mich.; Cleve-  
land, Ohio, Central Services; Cleve-  
land, Ohio, Foundry; Dearborn, Mich.,  
Iron Foundry; Dearborn, Mich., Spe-  
cialty Foundry; Frame Plant, Dear-  
born, Mich.; General Offices, Glass  
Div., Dearborn, Mich.; Green Island

Plant, Troy, N. Y.; Hardware &  
Access. Gen. Off., Rawsonville, Mich.;  
International Div., Dearborn, Mich.;  
Power And Utility Services, Steel Div.;  
Sterling Township, Mich., Plant.

General Electric Co., (2): Owens-  
boro, Ky., Tube Plant; Meter Dept.,  
Somersworth, N. H.

Lago Oil & Transport Co., Ltd.,  
Aruba, Netherlands Antilles.

Lily Tulip Cup Corp., College  
Point, N. Y.

Missouri State Highway Commis-  
sion, District 9, Willow Springs, Mo.

Mount Vernon, Woodbury Mills  
Inc., Tallahassee, Ala.

Northern Pacific Railway Co., Gen-  
eral Office, St. Paul, Minn.

Ohio Valley Electric Corp., Chilli-  
cothe, Ohio.

Olin Mathieson Chem. Corp., (4):  
Mathieson Chem. Div., Niagara Falls,  
N. Y.; Film Div., Pisgah Forest, N. C.;  
Hutting Ark., Sawmill; Winnfield, La.,  
Sawmill.

Penn Dixie Cement Corp., Plant J,  
Nazareth, Pa.

Pittsburgh Plate Glass Co., Colum-  
bia Southern Chem., Jersey City, N. J.

Radio Corporation of America (3):  
Harrison Electron Tube Div., Harris-  
ton, N. J.; Tube Div., Woodbridge

Plant, Avenel, N. J.; RCA Victor  
Telev. Div., Bloomington, Ind.

Republic Steel Corp., Cleveland,  
Ohio, District.

Rohr Aircraft Corp., Riverside,  
Calif., Plant.

Stewart-Warner Corp., South Wind  
Div., Indianapolis, Ind.

Union Carbide Corp., National  
Carbon Co., Greenville, N. C.

U.S. Forest Service, Southwest  
Reg. 3, Albuquerque, N. M.

U. S. Pipe & Foundry Co., General  
Office, North Birmingham, Ala.

U. S. Plywood Corp., Kosmos Log-  
ging Div., Kosmos, Wash.

United States Rubber Co. (2): Do-  
minion Rubber Co. Ltd., St. Jerome,  
Que., Canada; Woonsocket, R. I.,  
Plant.

U. S. Steel Corp., (2) Oliver Iron  
Mining Div., Duluth, Minn.; Gary,  
Ind. Steel Works.

Visking Co., Division of Union  
Carbide Corp., Food Casings Div.,  
Chicago.

Weil McLain Co., Michigan City,  
Ind.

Western Electric Co. Inc. (5): Dis-  
tributing House, Philadelphia, Pa.;  
Distributing House, Pittsburgh, Pa.;  
Laureldale, Pa., Plant; Distributing  
House, Nashville, Tenn.; Hawthorne  
Works, Chicago.

Westinghouse Electric Corp. (4):  
Air Conditioning, Staunton, Va.;  
Lamp Div., Fairmont, W. Va.; Mica  
Products Dept., Pa.; Television Radio  
Div., Metuchen, N. J.

Weyerhaeuser Timber Co., Tacoma,  
Wash., Office.

## Whiting Refinery Wins Award of Honor Six Times

Whiting refinery of Standard Oil  
Company (Ind.) has won for the  
sixth time the National Safety  
Council's Award of Honor. The re-  
finery reported an accident fre-  
quency rate last year 65 per cent  
better than the three-year average  
of the oil industry and a severity  
rating of injuries 88 per cent better  
than the oil industry average. If  
imitation is the sincerest form of  
flattery, the entire oil industry is  
headed for a fine year, safetywise.

## AWARD OF MERIT

Alpha Portland Cement Co., Bir-  
mingham, Ala., Plant.

American Can Co., (3): Central  
Div., Lab 72A, Maywood, Ill.; Stock-  
ton, Calif., Factory 110A; Hudson,  
Jersey City, N. J., 17 A.

American Cement Corp., Hercules  
Cement Co., Nazareth, Stockertown,  
Pa.

American Marietta Co., Dragon  
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# Powder Extinguishing Agents

*for fires in combustible metals  
and special chemicals*



Ready for a test. Ten pounds of magnesium on a 5-ft. square area are ready for ignition by torch at right.

INCREASING use of combustible metals and special hazardous chemicals has led to the development of many dry powder and dry chemical extinguishing agents.

Before further discussion it may be well to explain the difference between a "dry powder" and a "dry chemical."

The term *dry powder* applies to an extinguishing agent suitable for use on combustible metals.

*Dry chemical* applies to an extinguishing agent suitable for use on flammable liquids and electrical fires.

A dry chemical can in some cases be used on a combustible metal fire, but a dry powder is generally not used on flammable liquids.

Since it is not practical to try to discuss all dry powders available

for use on combustible metals, the discussion is limited to those recognized by the major approval agencies. G-1 and Met-L-X are the two powdered agents presently approved for use on combustible metals.

G-1 is the oldest approved dry powder. It is applied to a fire with a shovel or hand scoop, and it cannot be discharged from fire extinguishers. Met-L-X is the first dry powder approved for use in extinguishers.

G-1 is composed of graded granular graphite to which is added phosphorus containing compounds to improve its fire extinguishing effectiveness. Its composition is such that it can be stored for long periods in open containers without deterioration or caking.

When G-1 is applied to a metal fire, the heat of the fire causes the phosphorus compounds to generate vapors which blanket the fire and prevent air from reaching the burn-

ing metal. The graphite, a good conductor of heat, cools the metal below the ignition point.

Met-L-X is a dry powder with particle size controlled for optimum extinguishing effectiveness. It is composed of a sodium chloride base with additives to render it free flowing and cause heat caking. Among the additives are tricalcium phosphate to improve the flow characteristics and metal stearates for water repellency. A thermoplastic material is added to bind the sodium chloride particles into a solid mass under fire conditions.

Met-L-X is stored in sealed containers or extinguishers and is not subject to decomposition or change in properties. Periodic replacement of extinguisher charges is not necessary to maintain extinguishing effectiveness. Met-L-X extinguishers range in capacity from 30 lbs. for the smallest hand portable extinguisher to 2000 lbs. for the largest single stationary system or piped system in use at present.

The technique used to extinguish a metal fire with Met-L-X is to open the nozzle of the extinguisher fully and apply a thin layer of agent over the burning mass from a safe distance. Once control is established, the nozzle valve is used to throttle the stream to produce a soft heavy flow. The metal can then be safely covered from close range with a heavy layer. The heat of the fire causes the Met-L-X to cake, forming a crust which excludes air and results in extinguishment.

G-1 and Met-L-X possess chemical properties desirable in extinguishing agents for metal fires. They are noncombustible, and secondary fires do not result from their ap-

Presented at the symposium "Developments in Dry Chemicals," 64th NFPA Annual Convention May 16-20, 1960, Montreal, Canada.

plication to a burning metal. There is no known health hazard resulting from the use of these two agents. Fumes from burning metals should be avoided. Neither agent is highly reactive with burning metals. Their use will not increase the intensity of a fire, even if applied in quantities insufficient to achieve extinguishment.

Extinguishing effectiveness of both agents on a given metal will depend on the physical form and quantity of the metal involved and on ambient conditions. The amount of agent recommended for a given hazard has been established by the major approval agencies.

Fires in dry or oily magnesium chips, turnings or castings can be extinguished with either agent. The ability of Met-L-X to cling to vertical surfaces makes it especially suitable for magnesium casting fires, because it is not necessary to bury a casting.

The fire hazard of uranium is similar to, but more severe than, magnesium. Successful use of both agents has been reported.

Fire tests with titanium turnings indicate that pound for pound G-1 is more effective than Met-L-X. This is true whether the turnings are dry or oily. The intense heat of such fires melts the Met-L-X crust and allows air to contact the burning metal. Continued application of Met-L-X to the hot spot is required for extinguishment.

Fires involving zirconium chips and turnings, coated with an oil-water coolant, are extinguished by either agent. Fires involving moist zirconium chips and turnings are only controlled.

Years of practical experience have shown that sodium in depth and sodium spill fires are easily extinguished with either agent. It has been found that sodium sprayed or spilled on vertical surfaces can be extinguished by Met-L-X because of its ability to adhere to the molten sodium.

Potassium and sodium-potassium alloy spill fires can be readily extinguished with either agent. Fires in depth present a more difficult problem. Because the specific gravity of these liquid metals is less than that of G-1 or Met-L-X, the powders tend to sink and re-expose the metal to air. If a perforated

plate is located near the liquid metal surface, it supports the crust formed by Met-L-X and the fire is extinguished. Although tests have not been run with G-1 using perforated plates, it is probable that results would be the same.

Met-L-X is not recommended for lithium fires in depth, because it sinks into the molten metal and its

An example of a pyrophoric liquid presently existing as a special hazard in industry and elsewhere is triethylaluminum. Producers of this material sought methods of handling fires resulting from spills. Preliminary small-scale fire tests in triethylaluminum were conducted to evaluate the effectiveness of various extinguishing agents.



Test station technicians transfer burning magnesium from one surface to another which has been coated with Met-L-X.

sodium chloride base reacts to form lithium chloride and sodium. If the application of Met-L-X is continued until more sodium than lithium is present, the resulting sodium fire is easily extinguished. Met-L-X is satisfactory for the extinguishment of lithium spill fires.

G-1 is suitable for the extinguishment of lithium spill fires and fires in depth.

Dry powders have a definite place in the protection of combustible metals, but all have certain limitations. The metal, quantity, physical form, and nature of the hazard must be considered when selecting the proper dry powder and the method of application.

Outside the field of combustible metals, pyrophoric liquids are now presenting a new fire hazard problem. These liquids ignite spontaneously and the resulting fires can be extinguished in some cases only by agents that do not contain water.

Water and foams were found unsuitable because of the violent water-aluminum alkyl reaction. Carbon tetrachloride was ineffective. Carbon dioxide extinguished pan fires but was ineffective on spill fires. Dry chemical and chlorobromomethane extinguished both types of fires, but in almost all cases reignition occurred after extinguishment. When spills were made over beds of adsorbents, the triethylaluminum burned less violently, was more easily extinguished, and showed less tendency to re-ignite.

Information obtained in these preliminary tests led to the use of an existing dry powder and the development of a special dry chemical for this unusual hazard.

Existing dry powder found to be suitable is composed of a graphitic adsorbent material processed to be free flowing, so it can be discharged from an extinguisher.

—To page 58

# New Safety Theme Catches On

**"SAFETY EVERYWHERE . . . all the time!" program is now in operation in hundreds of companies—many others plan to use the theme**

SINCE the "Safety Everywhere . . . All the Time" program was announced in the March issue of the NATIONAL SAFETY NEWS, the program has received wide and enthusiastic acceptance by NSC member companies.

Hundreds of firms have purchased materials featuring the yellow diamond and bulls-eye symbol. Many plants have elaborate programs under way to make the symbol an around-the-clock, on and off the job, safety reminder for all employees.

Most companies using the program have followed a timetable designed to develop interest in the Safety Everywhere . . . All the Time symbol and then maintain it through a series of meetings and by displaying the symbol as often as possible.

One enthusiastic user of the program is the Carrier Corp., Syracuse, N. Y. The company is employing a well-coordinated program to put across the Everywhere . . . All the Time idea. In order to provide an element of surprise and develop an

atmosphere of interest and curiosity, the yellow diamond and bulls-eye emblem was posted on desks, trucks, and other prominent places during the weekend. When the employees returned to work on Monday, they came up with many a wild guess as to what the symbol represented.

Carrier followed the teaser program with the showing of the "Safety Everywhere . . . All the Time" film. More than 1,000 employees of the Machinery and Systems Operation saw the film. "I am sure the reactions of our employees," writes Carrier safety director W. E. Stuffing, "was similar to those of employees in other industrial concerns who have been exposed to the film. Frankly, our employees were very enthused, and we were deluged with requests for stickers showing the emblem that could be placed on employees' cars, on tool boxes, lockers, and on items around the employees' homes."

The Transit Casualty Co., St. Louis, Mo., made a study of employee reaction to the "Safety Ev-

erywhere . . . All the Time" movie. The film was shown to the bus operators of the St. Louis Public Service Co. and by staggering the showings throughout the day, more than 80 per cent of the drivers were able to view the film. Of those viewing the film, 88.4 per cent considered the movie either very good or good. Only 5.2 per cent considered it average and an insignificant number thought it poor. Remarks from the operators indicated that the family and home atmosphere in the film heightened its appeal. The extensive scenes of water skiing were appreciated because so many men enjoy boating, fishing, and water skiing. Two men who saw the film in the morning mentioned that they went home and checked their appliances and later installed a ground wire. Another man in the audience had just injured his hand in a power mower accident, so he was "Exhibit A" to his fellow viewers, illustrating the truth of the incident portrayed in the film.

Another company using the program is the Nashville Electric Serv-

**Carrier began with teaser**



During week-end absence of workers from the plant, Carrier's safety director, W. E. Stuffing, posted the SEATT symbol on all in-plant vehicles.

**. . . then came SEATT film**



With employee interest aroused, the next move was a showing of the film, "SAFETY EVERYWHERE . . . all the time!" Here, safety men M. James Doran and Lee Greer discuss the film with workers immediately following screening.

**"SAFETY EVERYWHERE . . .  
all the time!" to be  
theme of 1960 Congress**

ice, Nashville, Tenn. The company has added extra interest to the program by running a family safety contest in conjunction with it. Employees win a hundred dollars a month in prizes.

In connection with the "Safety Everywhere . . . All the Time" campaign, the National Safety Council has made available many materials in addition to the full-color movie. These items include posters, leaflets, large banners for plant bays, scoreboards for both plant and home use, stickers for correspondence, and other devices. At the present time an additional group of six leaflets and posters is being prepared at NSC headquarters to augment the program aids already available.

The SEATT program aids have had wide acceptance in many industries. The public utility industry has been particularly active with materials being used by American Telephone and Telegraph, Southwestern Bell, Illinois Bell, New York Telephone, Nashville Electric Service, Western Electric, Florida Power, Indiana Bell, New Jersey Bell, Northwestern Bell, Baltimore Gas & Electric, Detroit Edison, Consolidated Edison of New York, and others.

Some of the large industrial users are DuPont, Monsanto, Dravo, Republic Steel, Bethlehem Steel, Dow Chemical, General Motors, Ford, Chrysler, General Electric, Westinghouse, Inland Steel, Owens-Illinois Glass, Pittsburgh Plate Glass, and Alpha Portland Cement.

In addition to some branches of the U. S. Air Force, Army and Post Office, the program is being used by various departments of the state governments of Oregon, Virginia, California, and North Carolina. Many companies in Canada are participating. Included are the Shell Oil Co. of Canada, Imperial Oil, Quebec Mining, International Nickel, Canadian Industries Ltd., and the Transportation Safety Assn. of Ontario.

**Scoreboards, banners, stickers maintain interest**



Departmental scoreboards remind workers to play it safe. A member of the safety committee keeps records up to date, showing 241 days without disabling injury.



Huge banner greets employees as they enter Carrier's Machinery and Systems Operations Building.



Fork lift truck brings "EVERYWHERE . . . all the time!" message to employees throughout the plant.

**SEATT goes  
home with  
the employee**



For use on employee cars, Carrier developed small vinyl stickers with the SEATT symbol.



Employees are also provided with the handy safety scoreboard for recording home injuries.

# *IDEAS THAT WORKED*

## **Devices and Ideas to Help Your Safety Program**

**By Arthur S. Kelly, Industrial Department, NSC**

## A Puzzling Situation

## Safety Quizzer No. 3

1. This contest is open to employees actively working at the East Alton Plants anytime during the contest period except members of the Safety Department.

2. Contestants may submit only one puzzle per contest period. A contest period is from the date of publication of the paper until date and time puzzle must be submitted.

3. Contestants are not eligible to win more than one prize in this contest.

4. The correct solution to each puzzle shall be determined by the Safety Department. Only that solution can win. The decision of the Safety Department shall be final and conclusive. In case of ties, the winners will be determined by a drawing. Three prizes will be awarded for each contest period and will be given for the three correct or most nearly correct puzzles.

5. Quizzer No. 3 must be turned in by 4:00 p.m. on May 13 to be eligible for the contest.

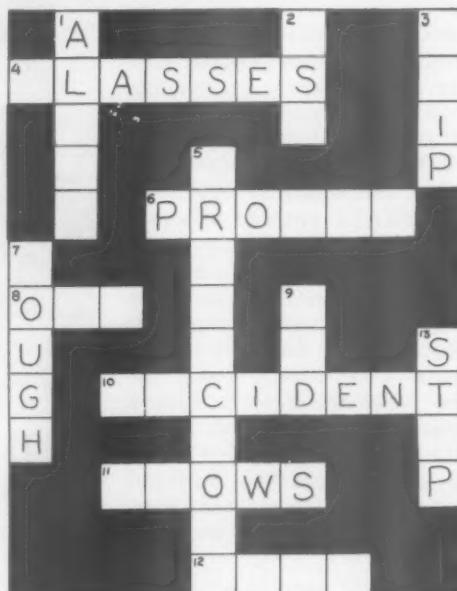
6. Entries must be made in crossword puzzle form. Where more than one possible word would match and make sense, select the one which most aptly fits the clue.

7. Winners for Quizzer No. 3 will be announced in the Wester-  
ner News in the May 20 issue.  
Winners must contact the Safety  
Office in order to select their  
prize from those offered. Win-  
ners may choose one of the fol-  
lowing: a portable electric mix-  
er, a five foot folding aluminum  
table, or a spinning reel.

8. All puzzles must be turned in at the contest boxes which will be located at the following spots:

1. Main Gate
2. West Gate
3. McQuigg's Gate
4. Powder Mill Gate
5. Zone 4 Gate
6. Cafeteria of Broadway Office.
7. Hallway outside of dining room at Main Office, East Alton

Puzzles may be mailed to the Safety Office but those received after the times shown above for the respective contest periods will be disqualified.



CLUES ACROSS

4. Safety are good things to have.
  5. medical attention is the best thing for injuries.
  6. Before you work on it, lock it !
  7. Don't be responsible for a safety .
  8. Good safety on a person.
  9. To be safe, you must be .

CLUES DOWN

- SAFETY**

1. A safe worker will stay . . . . .  
2. If you don't know the safe way, . . . . .  
3. The cause of many injuries while carrying heavy leads is a bad . . . . .  
4. Symbol for safety (two words).  
5. Help is a good thing to have when the going is . . . . .  
6. Solvent safety cans are usually painted . . . . .  
7. In icy weather, always . . . . . carefully at street corners.

## WORD LIST

Name		Department
accident	glasses	out
alert	gloves	prompt
alive	grows	proper
alone	Green Cross	red
ask	grip	rough
Blue Cross	here	shows

**WINNERS OF CONTEST NO. 2**

**WINNERS OF CONTEST NO. 2:**  
**WILMA BARTH, Fabricating**  
**CAREY RHOADS, Brass Mill**  
**WILLIAM L. POWELL, Primary**

## Spin Yourself an Accident!



PERSONNEL at USAF Aerospace Medical Center, Brooks Air Force Base, Texas, are encouraged to have accidents—through a homemade carnival “wheel of chance.”

This device enables the chance-taker to suffer imaginary mishaps as the result of a spinning wheel labeled “sprained back,” “fatal” and similar descriptions, instead of having to go through a real-life injury elsewhere.

Painted green and white for safety, the wheel operates between top and bottom signs colored with orange Day-glo background with black lettering. Periodically, the wheel is moved from one department to another.

Submitted by Herbert W. Shockey, T/Sgt., USAF, director of ground safety, USAF Aerospace Medical Center, Brooks Air Force Base, Texas.

## 3-Sided Subject

A THREE-SIDED illuminated metal sign, hanging just above head level, is keeping safety before employees of the Delco-Remy plant of General Motors Corporation at Anderson, Ind. The sign is a real eye-stopper.

Each of its three sides is about 25 in. square and provides for three 6½-in. removable units on a face. On each corner is a 24-in. neon tube with a metal shield to prevent glare and to make lighting indirect.

This device can be used to fit in with specific safety campaigns. The top panel remains throughout the year. Middle and bottom panels can be changed monthly or more often.

Submitted by Al B. Stanley, safety engineer, Delco-Remy, General Motors Corporation, Anderson, Ind.



## THE WINNERS

### July

“Safety Topics,” submitted by Q. W. Goode, safety supervisor, Farm Implement Div., International Harvester Co., Memphis, Tenn., was the winner in last month’s “Ideas That Worked.” Mr. Goode’s submission was a biweekly safety newsletter that used illustrations and humor to heighten employee interest.

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The best idea for the first six months of 1960 was “Accident Control Chart,” which appeared in the January issue. This idea, according to E. H. Fink, supervisor of safety and training, American Can Co., Brooklyn, who submitted it, was “stolen” from the quality control department. The chart shows experience in graphic form.

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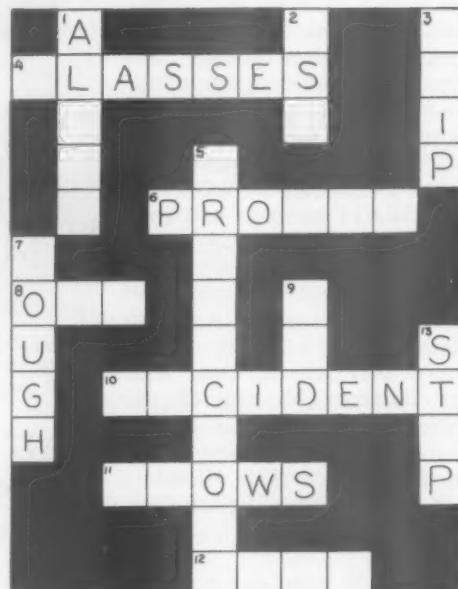
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7. Winners for Quizzer No. 3 will be announced in the Westerner News in the May 20 issue. Winners must contact the Safety Office in order to select their prize from those offered. Winners may choose one of the following: a portable electric mixer, a five foot folding aluminum table, or a spinning reel.

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**CLUES ACROSS**

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ask	grip	rough
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# OCCUPATIONAL HEALTH



By J. T. Siedlecki  
Industrial Hygienist, NSC

## Abstracts of current literature on Occupational Hygiene, Medicine, and Nursing

### Microwave Radiation Hazards

"Microwave Radiation Hazards," By W. E. Morgan, *A. M. A. Archives of Industrial Health*, Volume 21, pp 570-573 June 1960.

MICROWAVES are relatively short of electromagnetic impulses in the high frequency oscillator tube. Microwave radiation energy can be reflected or absorbed by an object in the direct path of the beam. When placed in a radar beam, the body will be warmed as is any other conductive object.

If the temperature rise exceeds the capacity of the body to dissipate energy applied, the condition aggravates itself, and it is possible that damage could occur. Radiation at frequencies of 3,000 megacycles and above is usually reflected or absorbed by the outer layers of the skin. Radiation in the range between 1,000 and 3,000 megacycles is capable of penetrating the skin and heating the fat layer.

Frequencies of less than 1,000 megacycles are the most serious, as they penetrate the skin and fat layers and heat the deep tissues of the body. Since this area of the body has fewer sensory elements, a possibility of overheating could occur before there is adequate warning to the brain.

The present control standard of the U.S. Air Force maximum permissible power density level is 0.01 watts per square centimeter. A microwave field can be monitored with the simple instrument described in the article. The monitor probes at a practical distance from the radiator and gradually works in toward the source.

There is no proof at this time to show that anyone has been seriously injured from working with radar equipment. The few reports of alleged injuries indicate these have not been caused by radar but in the

opinion of medical scientists by other hazards.

It is still believed that to guarantee the safety of persons who work with radar, additional and precautionary measures are needed.

### What Is Normal Hearing?

"What Do You Mean by Normal Hearing?" By J. H. Botsford, *American Industrial Hygiene Association Journal*, Volume 21, pp 125-129. April 1960.

THERE HAS been difficulty in understanding the meaning of normal hearing since the standards and terminology of hearing, testing and evaluation were established more than 20 years ago. Normal hearing was used to describe the hearing reference zero, and hearing loss was designated by an American standard to describe variation from the zero.

This has caused many medical-legal difficulties, since it is difficult to explain that the normal range of hearing extends from a hearing loss of minus 10 to a hearing loss of plus 10 or 15 decibels. In addition, several formulas have been used in estimating percentage impairment on the basis of hearing loss depicted by an audiogram.

The Subcommittee on Noise of the American Academy of Ophthalmology and Otolaryngology has set up a new guide for the evaluation of hearing impairment which seems much superior to the methods previously used. This guide was published in the *Journal of Occupational Medicine*, Volume 1, page 167, March 1959.

The method attaches no significance to average hearing levels at 500, 1,000 and 2,000 cycles per second of less than 15 decibels.

The author in this paper shows that by comparison of the hearing status of a suspected case of occupational hearing loss with hearing data of an unexposed group, such

as that obtained on male office workers studied in the Wisconsin State Fair Hearing Survey in 1954, the significance of hearing status may be determined by this means, one can roughly determine whether a certain hearing loss should be regarded as usual or unusual when compared to those who are unexposed and whether the probability is that the condition is casually related to employment.

### Toxicity of Diborane In High Concentrations

"Toxicity of Diborane in High Concentrations," A. R. Stumpe, USAF (MC), *A.M.A. Archives of Industrial Health*, Volume 21, pp 519-524. June 1960.

DIBORANE IS one of the boron hydrides or boranes which may be used extensively as high energy fuels in future aircraft and rockets. The author in this paper describes an investigation regarding the acute toxicity of this propellant. Results confirmed previously published observations regarding the toxicological effect of diborane. Its effect is primarily on the lungs, where it produces congestion, pulmonary edema, hemorrhage, and anoxic type death.

The author mentions in the article that it has been found that diborane is more toxic than deca-borane but less toxic than penta-borane. The chemical cartridge respirator using active hopcalite as a filling material can be used to provide respiratory protection against exposure to diborane.

Treatment of the accidentally exposed person is supportive and symptomatic. Major Stumpe stresses in his article that because of the extreme toxicity of diborane, it is imperative that future aircraft and rockets utilizing the diboranes as high energy fuels be designed to provide the utmost protection against accidental contamination.

**A NATIONAL SAFETY COUNCIL  
TECHNICAL SERVICE**

# FALLS ON FLOORS

*Copies of this data sheet will be available for order within 30 days.*

## Introduction

1. This data sheet reviews the principal causes of falls on floors, describes types of flooring, discusses the use of abrasive and floor dressing materials, and indicates specific procedures for controlling fall hazards from various sources.\*

2. In commercial establishments, falls of persons occur more frequently and result in more severe injuries than any other type of accident. This problem is especially acute in stores, hotels, restaurants, theaters, and other public buildings since their clientele frequently includes a large percentage of older people, who are particularly susceptible to serious injury from falls.

3. The combined general liability experience of three large department store chains, one large supermarket chain, and one large restaurant chain for a three-year period shows 10,881 accidents, which cost \$1,200,000. Falls on floors accounted for 1,995 or 18 per cent of these accidents and for \$357,000 or nearly 30 per cent of the costs.

4. Falls on floors occur in various ways and from various causes. A person may slip and thus lose traction, or he may trip over an object. In either case, he may lose his balance and fall. A person may also be thrown off balance because

This data sheet is one of a series published by the National Safety Council, reflecting experience from many sources. Not every acceptable safety procedure in the field is necessarily included. This data sheet should not be confused with American Standard Safety codes, federal laws, insurance requirements, state laws, rules and regulations, or municipal ordinances.

## Causes of Falls on Floors

1. This data sheet reviews the falls on floors are frequently the result of both unsafe conditions and unsafe acts. However, for purposes of discussion, unsafe conditions or mechanical causes of falls are here considered separately from unsafe acts and other personal causes.

6. Although less than 10 per cent of customer falls in stores are due exclusively to slippery floors, in nearly every floor fall accident claim this condition is alleged to have existed. The primary mechanical causes of falls on floors are in reality unobserved, misplaced, or poorly designed movable equipment, fixtures, or displays; poor housekeeping; defective equipment;

he is startled by unexpected noise, sudden starting of machinery, or horseplay or because he is subjected to a suddenly applied force like that encountered in running or jumping.



Figure 1. A well-maintained floor adds to appearance as well as to safety.

\*Although this data sheet discusses the problem of falls on floors in terms of commercial establishments, the basic principles of prevention and control apply equally in industrial plants.

and the unsafe physical conditions created by improper work procedures.

7. Tripping hazards constitute one kind of unsafe condition which causes falls. Examples are merchandise left in aisles; extension cords lying across paths of travel; displays, platforms, or merchandise racks protruding into traffic lanes; torn or loose carpeting; holes or unevenness in the floor.

8. The presence of foreign substances (food, water, grease, oil, sawdust, soap, debris) on otherwise safe floors can lead to falls.

9. Improper dressing or cleaning of floors may result in hazardous conditions. The surface of an initially "slow" floor may have been made "fast" through the application of an unsuitable dressing material, or a cleaning agent either not suited to the surface or incorrectly applied may have been used.

10. Inherent slipperiness of the floor material is another cause of falls. It is characteristic of highly polished but unwaxed surfaces such as marble and terrazzo and of iron and steel plates. Locations subject to heavy use—ramps, elevator entrances, stairways, turns in corridors, and operating positions near machinery that requires pushing or pulling efforts—also may present problems of slipperiness. Various remedies are available. The surface of iron and steel plates, for example, may be roughened with an arc welding electrode.

11. Inadequate illumination can also be a cause of falls. Light values at floor level should be uniform with no glare or shadows. Also, there should be no violent contrasts in light levels between floor areas.

12. Undoubtedly, a large percentage of falls stems from unsafe acts and from purely personal causes such as age, illness, emotional disturbances, fatigue, and poor vision, which cannot be readily identified or controlled. It thus becomes doubly important to eliminate unsafe conditions and unsafe employee practices to which the blame for an accident can be shifted or which might contribute to the personal cause. As an example, mirrors and other distracting decorations should not be placed in areas visible from steps or from approaches to steps.

13. Inattention is a personal cause which is probably a factor in all falls.

14. Unsafe practices in walking also account for many falls. The average person is standing correctly when his feet are at an easy angle about 10 inches apart. The hip bones are separated by about the same distance. Thus, the feet and legs form two strong supporting columns with the body well balanced on them.

15. As a person turns, he should place one foot at an angle of not more than 80 degrees with the other. The weight should be shifted onto this turned foot. Then only should the other foot be brought up parallel. This sequence maintains balance.

16. Some people, in walking, spring from the floor with one foot and come down with a sliding motion on the other. They depend on the usual or expected friction between the soles of their shoes and the walking surface. However, the coefficient of friction may vary unexpectedly, throwing the walker out of balance. This is the basic cause of many falls.

17. To walk in balance, a person should step out and, while balanced on one foot, bring the weight onto the forward foot until the body's center of gravity is directly over it. This technique keeps the body in balance at all times and enables a person to walk on slippery surfaces without falling.

#### Types of Floor Surfaces

18. A wide variety of floor surfaces is available. In office buildings, hotels, mercantile and similar establishments, it is common to find masonry (cement or quarry tile) floors at entrances, in lobbies, on stairways, and sometimes extensively throughout the ground floor and in upper floor corridors.

19. Decorative materials such as terrazzo, marble, and ceramic tile are most often used for interiors while concrete and granite are generally considered more practical for exterior use.

20. In other public areas in these buildings, the base floor, usually of concrete or wood, is generally surfaced with one or more of the popular resilient floor covering materials. Carpeting is commonly used on

limited areas in the better department, furniture, specialty, and similar stores and in hotels. Elsewhere, asphalt, linoleum, rubber, or plastic, in either sheet or tile form, will usually be found.

21. Most flooring materials, whether wood, masonry, or the resilient types, are reasonably slip-resistant in their original untreated condition. Exceptions will be found among some of the masonry materials.

22. A highly polished marble, terrazzo, or ceramic tile may be used to achieve an ornamental effect. These highly polished surfaces can be slippery even when dry. Their slipperiness will be greatly increased by moisture, by improper surface treating preparations, and by improper cleaning materials and methods. The only preparation which should be used on such floors is a penetrating sealer.

23. Asphalt tile is composed of blended asphaltic or resinous thermoplastic binders or both types, asbestos fibers or other inert filler materials or both, and pigments. These materials are mixed by machine, formed under pressure while hot, and cut to desired size.

24. There are three types of asphalt tile—standard, grease-proof, and acid-resistant. The grease-proof type is resistant to animal, mineral, and vegetable greases and to alcohol, alkalis, and mild acid solutions. The acid-resistant type is designed for laboratory floors and other areas exposed to chemicals.

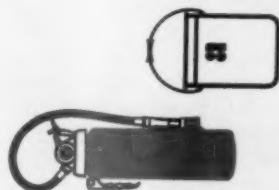
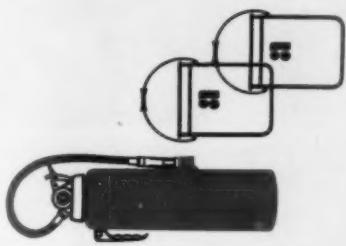
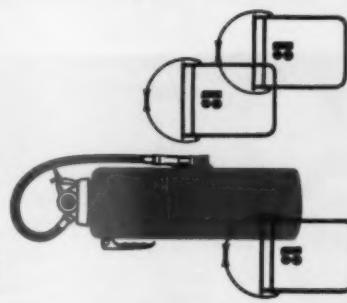
25. Linoleum is known by a variety of names, such as "inlaid," "marbleized," "plain," "battleship," or "jaspe." The name usually indicates the grade or method of coloring the product. Linoleum is composed of cork dust, wood flour, or both, held together by binders consisting of linseed oil or resins and gums. Pigments are added for color. The surface is calendered onto a felt base or burlap backing. It is usually produced in tile form, or in sheet form in rolls 6 or 9 feet wide.

26. Rubber tile is made of a vulcanized, natural, synthetic, or combination rubber compound, cured to a sufficient density to prevent its creeping under heavy foot traffic. The tile is molded under high pressure, and the pigments are

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fused with the rubber. It may contain reinforcing fibers. Some forms are made with a sponge rubber cushion laminated to the base.

27. Rubber tile floor is resilient and comfortable underfoot. It has valuable sound-absorbing qualities, is stain-resistant, and is available in either tile or sheet form in a wide variety of colors and designs. It provides a nonslip surface except when wet or coated with some other skid-producing material.

28. Plastic tile contains binders of vinyl or copolymer plastics instead of resins and gums. Vinyl plastic tile contains asbestos fibers in varying degrees. It has been observed that the greater the proportion of asbestos, the more slippery the tile when it is untreated.

29. Terrazzo is a composition masonry material of marble chips and cement. After a layer about  $\frac{1}{8}$  inch thick has been applied, it is leveled and troweled, allowed to harden, and ground to a polished surface. A sealer which fills all pores is then applied. A nonslip surface can be secured through the use of abrasive particles.

30. Wood, being naturally cellular, is porous and thus can absorb and retain quantities of liquids after it has been dried. The customary wood floor finishing treatment is sanding and sealing with a penetrating sealer, surface coating with varnish, shellac, or other preparation, and, finally, waxing and polishing.

31. Natural stone most commonly used for floors is marble or granite. In general, stone is used for decorative purposes or in areas where floors are subject to heavy traffic, corrosive materials, or other deteriorating factors. It may have either a polished or a natural surface. Sealers may be used to fill pores. Since natural stone floors are relatively impervious, they may become slippery from fluids, ice, or snow. Abrasive particles or other nonslip materials are seldom used on decorative floors.

### Use of Abrasive Materials

32. Abrasive materials of various types may be used to reduce the slipperiness of floors. Colloidal silica, for example, has been successfully incorporated in wax and synthetic resin floor coatings and appreciably

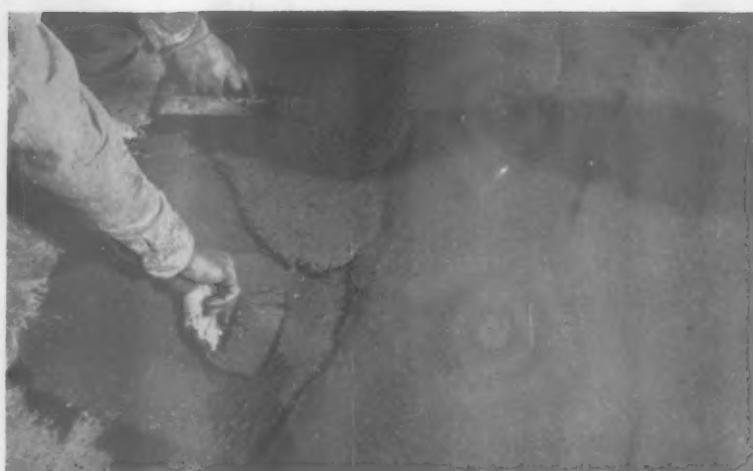


Figure 2. Abrasive materials can be included in the original mix of poured flooring materials to help solve slipping problems in specific areas.

increases nonslip qualities if used in proper proportions.

33. Colloidal silica is an opalescent, aqueous solution containing 30 per cent amorphous silica dioxide and a small amount of alkali as a stabilizing agent. Chemically, the product may be considered a colloidal solution of hydrated silica (sand) or a polymerized form of silicic acid in solution. A manufacturer states: "Waxes properly formulated with this colloidal silica surround softer wax particles—pass onto them when stepped on. Energy absorbed at the point of impact helps keep the foot from slipping."

34. Metallic particles and artificial abrasives in a varnish or paint will give good nonslip qualities to various types of flooring.

35. Abrasive materials, such as silicon carbide or aluminum oxide, can be included in the original mix when terrazzo or concrete flooring is laid or can be sprinkled on the surface in specified sizes and amounts. Abrasive inserts can be placed in or on travertine, marble, terrazzo, or metal stairways to improve traction.

36. Special slip-resistant surfaces should be specified where the floor slopes (as on ramps or other inclines), where foreign substances may be present (as in food preparation and serving areas, in washrooms, at entrances from outside), and at such locations as elevator entrances.

37. Where terrazzo is to be used in such locations, the abrasive con-

tent should be as follows: "For heavy-duty floors the proportion shall be two (2) parts of abrasive to three (3) parts of marble granite, and the abrasive aggregate shall be mixed in the terrazzo topping for its entire thickness."\* The larger abrasive grain sizes, over  $\frac{1}{2}$  inch, are preferred.

38. Other nonslip materials which have been effectively used include abrasive tile, abrasive fabric, and abrasive impregnated mastic compound.

39. Feldspar and similar materials have been recommended for use as sweeping compounds to reduce the slipperiness of treated floors, but their value in this respect is negligible. Feldspar must be left on the floor to give an effective abrasive and gripping action.

### Dressing Materials

40. Materials for dressing or "treating" or "finishing" floors include wax or wax-base products, synthetic resins, and paint products.

41. For most general maintenance purposes, wax, especially Carnauba wax, is widely used in both paste and emulsion forms as a base for floor surface preparations. Carnauba wax, a palm tree product generally used in so-called wax products, dries in place with a hard and glossy finish. It does, however, give a characteristically slippery surface.

\*From *Standard Terrazzo Specifications*, as adopted by the National Terrazzo and Mosaic Associations, Inc.



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42. Other waxes, notably petroleum wax and beeswax, are also used in floor dressing formulas. They are softer and less slippery than Carnauba wax, but are still slippery to a degree, depending on the formula.

43. Synthetic resins, known also as "synthetics," "resins," or "polishes," are intended to supply the desirable characteristics of wax without the same degree of surface slipperiness. Resins can, in fact, be compounded to produce more hardness than wax and a higher gloss. Among the ingredients are soaps, oils, resins, and gums, compounded in various ways to produce the desired result.

44. In general, the synthetic resins are reasonably nonslippery. Frequently, though, they are only moderately satisfactory in such respects as gloss and hardness. In many places, a high degree of gloss or hardness is not essential, and for such places the resin products may well be considered superior.

45. Paint products—paint, enamel, shellac, varnish, plastic—are semipermanent finishes used principally on wood and concrete floors. These finishes do not materially increase the slipperiness of the base floor.

#### Treatment of Floor Surfaces

46. Terrazzo floors may be maintained in one of two ways. They may be treated with semipermanent seal and cleaned with liquid neutral detergent or with slip-resistant dressing. Practically all terrazzo exponents finish the job with sealing. None will recommend not sealing or dressing.

47. The customary finishing treatment for wood floor is sanding and sealing with a penetrating sealer, then dressing like a resilient floor with a solvent-resistant combination cleaner and dressing.

48. The use of oil on wood flooring is not recommended since it will leave a slight film unless the floor is thoroughly wiped and dried. Appropriate commercial products, applied according to the manufacturer's instructions, should always be used in preference to oil.

49. The usual treatment for the resilient floor surfaces (those of asphalt, rubber, plastic, or linoleum) is to strip and clean the floor

periodically, then to apply wax or synthetic resin finish, and buff or polish the floor when necessary. The dressing protects the floor surface from wear, brings out the natural beauty of the color or pattern, and makes the surface easier to clean and renew.

50. Many commercial preparations, most of which meet these requirements reasonably well, have been placed on the market. Unfortunately, however, in many cases their use causes surfaces to be dangerously slippery.

51. Selection of a product which possesses, in addition to the other requisite properties, a satisfactory coefficient of friction is necessary if falls are to be prevented. A dressing product cannot, however, be selected solely from the standpoint of its slip-resistant qualities.

52. Elimination or reduction of wax content makes a dressing less slippery but also detracts from appearance and may involve other disadvantages. For instance, polishes with high friction rating may "dust" or "powder" in use. Whether or not a given product is satisfactory from all angles can be determined only by experience.

53. A tabulation of over 400 tests on resilient floor surfaces with a great variety of products indicates that any of the surfaces can be made attractive and relatively slip-resistant if the proper finish is correctly applied. However, it may be noted that rubber tile and linoleum are inherently less slippery than asphalt tile or vinyl asbestos combinations.

54. Most suppliers can furnish a floor finish to specification. The purchaser, therefore, should specify in his purchase order the friction level he desires. If a particular supplier's products do not meet the specifications desired, comparative tests of various dressings can be made to determine which one is preferable from all standpoints, including coefficient of friction on the floor in question.

#### Procedures for Treating and Washing Floors

55. If floors in commercial and industrial establishments are treated and washed during normal working hours, unnecessarily large numbers of people may be exposed to the

hazard of falls. Preferably, such work should be done outside business hours. If this arrangement is not practical, a time should be selected when comparatively few people will be on the premises.

56. To keep the working area out of use until it is dry and safe, several precautions should be taken:

- a. Barricade the working area, preferably by means of rope 36 inches to 42 inches high and stanchion barriers not more than 25 feet apart. Where possible, as in sales areas, the rope may be anchored to permanent fixtures.
- b. Provide appropriate warning signs at the principal approaches to working areas. Signs may read "Men Working," "No Passing," "Wet Floor," and so on. Such signs are available from commercial suppliers.
- c. When work is to be done in or near exit paths leading to stairs, doors, elevators, or escalators, post signs indicating alternate routes. Before working in front of stairways and escalators, block them off at both top and bottom. Block both sides of doorways.

57. The procedure used for washing and treating floors is in itself the direct cause of many accidents and must be considered when the reasons for floor falls in a given area are being analyzed. Persons performing these operations are often unskilled and fail to adhere to the manufacturer's directions when applying the finish. Many of the best finishing materials can be hazardous when improperly applied. Various errors in procedure are listed below:

- a. Floors not completely and properly stripped of previously applied finish.
- b. Floors improperly cleaned or scrubbed.
- c. Floor-treating product applied too often.
- d. Surface not properly buffed when buffing is necessary.
- e. Finish applied with improper equipment.
- f. Too much finishing material applied.
- g. Improper finish for type of floor.
- h. Inadequate drying time.

58. If the floor is washed with soap or powder, it should be flushed clean with clear water to remove all soapiness. In many cases, detergents other than soap are used be-

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cause even though they are not thoroughly removed, they do not leave the floor slippery.

59. Oil and grease may be removed from floors in one of several ways:

- a. Cover the floor with air-slaked lime to a depth of about  $\frac{1}{4}$  inch; allow it to remain there for two or three hours; then remove it with a scraper or stiff brush.\*
- b. Scrape off as much of the grease and oil as possible; sprinkle caustic soda or potash on the surface; then scrub vigorously with hot water.\*
- c. Use common sand or one of the numerous commercial cleaners available for this purpose.

### Movable Equipment

60. Since fixtures, displays, and other portable equipment are involved in over 40 per cent of customer falls in stores, it is essential that management provide safe equipment and that the accident control program place particular emphasis on safe use of that equipment. It is impossible to discuss here every precaution applicable to movable equipment. The safe practices indicated in the following paragraphs are the ones which accident investigations most often show to be necessary in stores.

61. Dress racks and stock trucks should be removed from the sales area and returned to the stock room as soon as they have been emptied. When dress racks are in use on the floor, they should be placed so that they do not block aisles or extend from a side aisle into a main aisle. If possible, trucks should not be used on sales floors during store hours.

62. In most tripping accidents involving display bases, the bases are 6 inches or less in height. For maximum safety, therefore, bases or platforms for mannikin or other displays should be at least 12 inches high. The top and sides should be a color that contrasts with the color of the general floor covering. The top edge should have no overhang or lip so that the side surface will be smooth.

63. Bases should not be of such unusual shape as to provide unex-

pected extensions over which individuals can trip. Either bases should be round, or the corners should be rounded. A display base should not be placed at a counter end or at a column if the diameter of the base exceeds the width of the counter or column.

64. All electrical wiring and extension cords for store machines, displays, special decorations, and the like should be designed so as not to lie on the floor. Where necessary, wires or cords may be installed in low profile channels.

65. Shoe gauges should be kept under seats when not in use. Portable foot mirrors should be placed against walls, pillars, or counters, not out in aisles.

66. Shoe fitting stools and children's shoe fitting platforms should be a color that contrasts with the floor. While fitting customers, salesmen should not allow more than a few pairs of shoes to accumulate on the floor. These shoes should be placed close to and toward the rear of the fitting stool so that persons cannot trip over them.

67. A high percentage of falls is caused by stock left in aisles. Stock should not be left piled or standing in aisles except while employees are filling shelves or stock drawers or dressing a display and are present in the area so that others can see the hazard.

68. Stock drawers should be closed promptly after stock has been removed. Stock on lower shelves fronting aisles should be kept back on the shelves.

69. Stock containers, such as baskets, boxes, bags, trays, and cartons, must be removed from the aisles immediately after they have been emptied. If prompt removal is impossible, they should be so placed as to minimize tripping hazards.

70. Sales items less than 12 inches in height should not be displayed on the floor except in racks or in large groups accompanied by signs. Such objects as magazine racks, footstools, garbage pails, and the like should never be displayed in aisles; they should be placed on display bases.

### Housekeeping

71. Poor housekeeping accounts for one-third or more of all customer falls. The daily work habits

of employees determine to a large extent the character of store housekeeping. Therefore, each employee should be made to realize that it is part of his responsibility to maintain good housekeeping in his work area, to report promptly unsafe floor conditions, such as tears in carpets, holes in the floors, or spills, as soon as he notices them, and to follow the safe practices he has been trained to observe. Some of the more important of these safe practices are discussed here.

72. No foreign substance should be allowed to remain on the floor. Employees should be trained to pick up misplaced articles and return them to their proper places and also to remove debris on the floor as soon as they spot it.

73. This safe practice is particularly important in areas adjoining special event displays or such sales counters as those for inflated balloons, toys, food, and the like. A delay of even a few seconds in removing foreign substances from the floor can result—and often has resulted—in employee and customer falls.

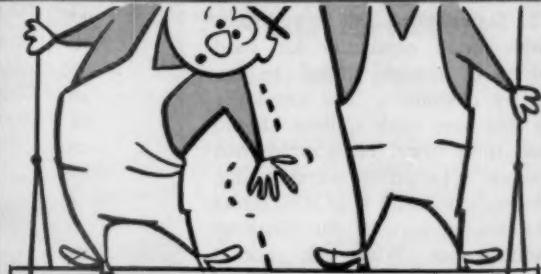
74. Employees should be trained to use the containers provided behind the sales counters for the disposal of trash and wrappings. When employees or supervisors note that such containers are not large enough to hold all the trash which accumulates during the working day, efforts should be made to secure larger containers, porter service should be provided more often, or the operation should be studied in



Figure 3. An effective warning sign like this one helps to prevent both public and employee falls due to spillage.

\*Employees using lime and other caustics should wear eye protection, rubber boots, rubber gloves, rubber aprons, and other protective clothing to prevent burns.

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an effort to reduce the amount of trash. Most important, all trash should be kept behind the counters and out of the aisles.

75. Supervisors and employees should watch especially for food dropped or liquids spilled on the floor by customers. The employee who first sees such spillage should report it at once. He should then place an appropriate warning sign at the spot or stand near it to direct customers aside until the clean-up person arrives. While the spot is being cleaned, it should be sealed off from all traffic.

76. Extra porter service should be supplied for areas adjoining temporary food and drink stands erected for special events. Also, well-marked containers for customers to use should be provided where the disposal of wrappings and containers is probable.

77. During inclement weather, extra porter service should be supplied to mop up excess moisture tracked in. Supervisors on the floor should check periodically to see that the porter service is adequate to keep floors relatively dry.

78. The use of colored rather than clear plastic hangers is suggested because they can be more readily seen. As hangers become empty, they should be placed in hanger boxes, bags, or racks so that they will not fall to the floor. Hangers found on floors should be picked up promptly, and hanger containers should be removed from the sales areas as soon as they are filled.

### Repairs

79. When repairs or renovations must be carried on in production or sales areas during working hours, arrangements should be made to close off or otherwise safeguard the areas affected. Floor supervision should monitor the job and should see that while it is in progress and after it has been completed, debris and tools do not remain on the floor, especially in traffic lanes.

80. Tears in carpets or rugs should be promptly repaired, and folded or wrinkled sections should be smoothed out. Open carpet seams should be reported as soon as they are noticed and should be sewed closed without delay. Rain



Figure 4. Warping, splitting and a protruding nail make this floor highly hazardous.

mats should be thoroughly inspected before they are put down and when they are taken up so that damaged sections can be repaired or replaced and curled up edges smoothed down.

81. Since women customers and employees in stores, offices, and other establishments may wear thin high heels, it is particularly important that floors be kept in good repairs. Broken or uneven tiles should be replaced. If unevenness is caused by a faulty under floor, the condition should be permanently corrected. Holes may develop in flooring from wear or from severe or rough treatment and should be filled in promptly. If wood floors become uneven because of damage or warping, prompt measures to reduce the unevenness should be taken.

### Ramps

82. Ramps are made unsafe by such factors as excessive slope, unguarded sides, and lack of color contrast. If a ramp appears to be the most satisfactory means of traffic movement in a specific situation, various safety measures should be considered:

- a. The maximum slope should be 1 inch vertical to 10 inches horizontal, preferably less.
- b. Color can be applied (striping or outlining) to provide a contrast between the ramp and the neighboring floor level.
- c. A nonslip surface can be installed.

d. Handrails should be installed if the slope is greater than 1 to 10 or if the sides are unprotected.

### Entrances and Exits

83. Automatic doors operated by stepping on rubber mats are widely used in commercial establishments at both entrances and exits. Malfunction of doors, faulty installation of mats, and improper maintenance procedures cause many customer falls.

84. Mats which operate automatic doors are permanently installed and should be recessed so that their surface is level with that of the adjoining floor. If mats cannot be recessed, they should have beveled edges and be securely and permanently fastened to the floor to prevent their curling or sliding.

85. If an automatic door, which is usually made of clear glass, fails to operate when persons step on the mat, collisions with the closed door and falls often result. To prevent accidents of this kind, doors should be clearly marked "In" or "Out," should have bumpers across them, and should be checked frequently for safe operation. Necessary repairs should be made promptly. When doors are inoperative, they should be securely fastened in the open position, or customers and employees should be plainly warned that they are out of order.

86. The floor surfaces at entrances, both inside and outside the doors, should be constructed of materials which will be relatively nonslippery at all times. Among the more desirable materials are rough-troweled concrete for external use and abrasives-impregnated tile and terrazzo for use both inside and outside. Even when containing abrasives, however, tile and terrazzo become somewhat slippery when wet.

87. Thresholds or saddles should hug the floor closely. The maximum safe height is considered to be  $\frac{3}{4}$  inch. Thresholds and saddles should slope at the edges so as not to present a tripping hazard and should be grooved or otherwise made relatively slip-resistant. Saddles should be tightly screwed to the floor with no loose or projecting screws. Breaks or irregularities in the adjoining floor should be repaired.

88. Defects in walking surfaces  
—To page 54

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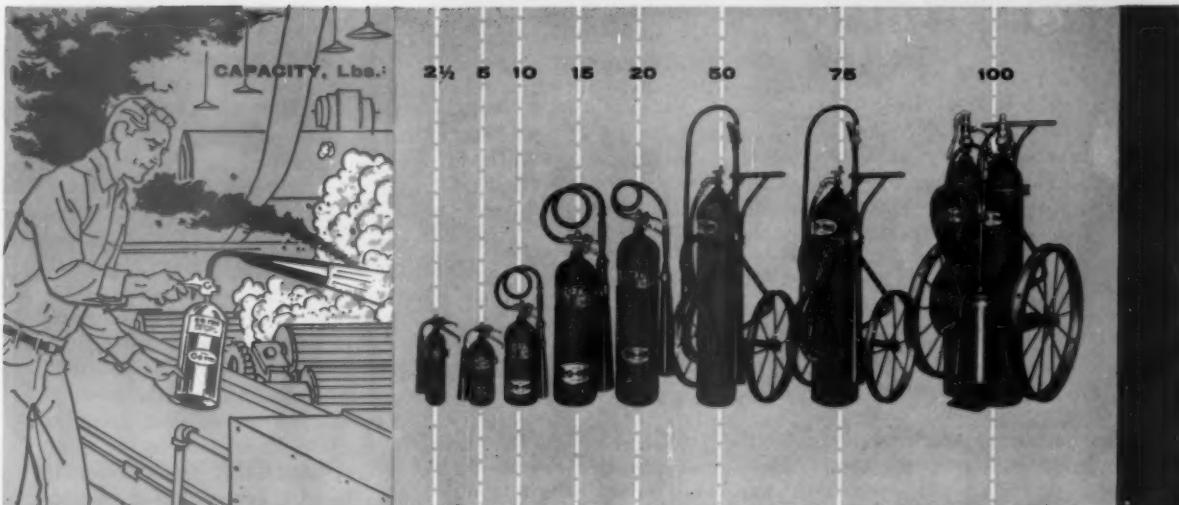
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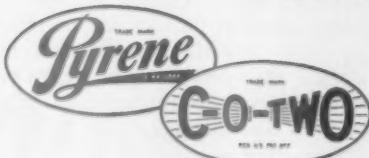
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# SMALL BUSINESS and ASSOCIATIONS

By RAYMOND C. ELLIS, Jr., and JOHN T. CURRY

Small Business Program Staff, National Safety Council

## Activity Increases in Small Business Safety

Representatives of the National Safety Council, American Society of Safety Engineers and insurance organizations have met with the National Association of Manufacturers and the National Industrial Conference to coordinate small business safety efforts.

State industrial councils or associations and trade or professional associations not currently engaged in a safety program for their member organizations will be urged to do so. The National Association of Manufacturers, National Industrial Council and the National Safety Council are prepared to assist associations in developing such a program.

In situations where a selling job must be accomplished with officers and board members of an association, the officers of companies and associations engaged in safety programs will be called on to "tell their story." In addition to economic aspects of safety, emphasis will be placed on humanitarian, legislative and efficiency phases of the total problem.

If you are classified as a small business organization, or are in an industry where the lack of safety activity on the part of small companies is resulting in higher manual rates, perhaps special assistance can be provided. Contact the Small Business and Associations Division of the National Safety Council with information as to the nature of your business and the association or associations that might be approached for the development of an industry-wide safety effort.

## Eliminate Those Hidden Costs

The National Safety Committee of the Gray Iron Founders' Society has included data on hidden costs in

one of their series of bulletins for the promotion of safety in their industry. This material is pertinent for those with safety programs and those thinking about development of safety activities.

A careful analysis of accidents often will reveal hidden factors generally overlooked in computing over-all injury costs. Direct costs (medical expense and compensation) are apparent; yet indirect costs, which are more difficult to evaluate, may often exceed direct costs of an accident.

Consider for example:

The cost of the "spectators wages" incurred when an employee group gathers at the scene of an accident, and then regathers in small groups to discuss the accident before normal production is resumed.

The supervisor's time spent on the accident, investigation, reports and restoration of normal production.

The cost of damaged material or equipment as a result of the accident.

Overtime or extra work necessary by others to maintain production schedules during absence of the injured worker.

Clerical costs processing investigation and compensation forms.

Expense of training substitute worker during absence of injured employee.

"Make-up" pay costs incurred due to decreased output or reduced efficiency of the injured worker after his return to work.

The cumulative effect of compensation and medical costs on insurance premium rates.

There may be other additional, unusual or incidental costs depending on individual employer policies in regard to wages, transportation or special services during the period of disability.

An efficient safety program is a sound approach to improving employee relations, operating efficiency and cost reduction.

## Safety in Action

Many sections of the Industrial Conference have become increasingly active in the development of safety activities among the representative associations for their specific industry. In some instances, this program has been directed through an associations committee of the section, while the NSC staff representative has handled the program for the section in other cases.

A recent report of the Small Business and Associations Division indicated the usual steps in the development of an association program. Initial contact is made as the result of correspondence, promotion mailings, inquiry, appearance at an association's executive group meeting, personal call at the association executive's office, referral through another association executive with a successful safety program in operation or through section referrals.

In addition to the associations, co-operative safety programs have been developed through local safety councils, chapters of the ASSE, state industrial councils and local chamber of commerce organizations.

Following the contact, a survey form is developed for the association or other organization. This is designed to obtain a maximum amount of information on the extent and nature of the safety problem in a given industry or occupational area. The



"Take it easy, Pop. I was cleaning it, and I didn't know it was loaded."



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- Extremely comfortable • Meet ASA specifications • Resist acids, alkalis, water and soil • Long wearing • Sturdy steel shank

## World's Lightest Safety Shoe

So good looking, so light, so comfortable . . . perfect for men who avoid ordinary safety shoes. New construction permits use of lightweight materials.

Uppers are of brushed pigskin in gray or brown, treated with KEMI KLAD to keep that soft casual look. Appearance is easily renewed by a quick brushing with a wire brush or ordinary sandpaper. And the natural breathe-ability of pigskin means extra ventilation for healthier feet. Thick, springy, oil-resistant neoprene Nitrocrepe soles cushion every step.

Workers really go for the good looks and comfort of LITE KNIGHT Safety Shoes. This enthusiastic acceptance by your men will assure the success of your safety program. For the name of your nearest jobber, write to:

**HAUS OF KRAUSE . . . Rockford, Michigan**

*Industrial jobbers interested in acquiring a franchise, write to Haus of Krause, Rockford, Mich.*

survey is confidential and is issued under the letterhead of the cooperating group. Completed surveys are returned to that office.

The completed questionnaires are forwarded to the Council, where an analysis is made through the Statistics Division. A report and recommendations are completed by the Small Business and Associations Division based on statistical data.

A single copy of this report plus the questionnaires are returned to the cooperating association or agency. The report may then be duplicated and sent to all members, printed in a monthly bulletin or magazine, or restricted to only those that participated in the survey.

Usually a member of the staff is available to present the report to the board of directors and/or the members of the organization. If the presentation is made at the time of the annual meeting, both groups are usually included.

It has generally been found ad-

visable that the organization establish a safety committee. This provides volunteer assistance to the association or agency executive and reduces budget considerations during the initial year or two to postage and bulletin expenses.

As the committee moves into the development of a safety program for the industry, the appropriate section representative of the Industrial Department assumes an active role. He provides technical know-how and consultation that will help the program succeed.

In some instances there is an intermediate step, wherein the Small Business and Associations staff assists in a program of education of the membership to the need for a safety program. Cost data and success stories of other associations are provided for the association or agency. Ultimate savings to be realized through a cooperative safety program are also stressed.

At the Industrial Department

level, technical materials, posters, accident reporting and recording systems, section or co-sponsored safety contests may be developed.

Association or small business safety programs may be assisted further through appearance of Council staff, officers or members of the board of directors at annual meetings to speak, participate in panel discussions, or moderate audience participation sessions.

When complimentary booth space is provided, safety exhibits are installed and, when possible, a staff member will man the booth. With the increase in number of invitations to provide safety exhibits and hand-out materials, many associations are providing the manpower through their own safety committees. This, of course, extends the capacity for reaching more people through volunteer assistance.

You are invited to utilize this Council service, if your industry is not now doing so.

# STOP MIS-GUIDED MISSILES



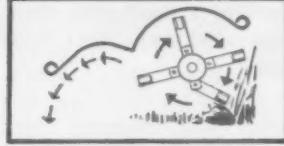
## with MOTT Hammer-Knife Mowers!

Here is the safest...the most versatile mower available today! The free-swinging blades of the patented MOTT Hammer-Knife mower fold back upon contact with obstructions...return to cutting position when clear...thus eliminating the danger of flying sticks, stones and other debris. Nothing—not even the clippings, are thrown from the mower.

The best of both rotary and reel are combined to provide an even cut regardless of roughness of terrain or condition of the grass...even when wet! The cutting action of the knives cut and re-cut the clippings into a fine mulch and deposit them evenly behind the mower.

Smooth even lawns...or tall man-sized weeds—ALL are cut and shredded in just one pass! AND there are 32 models to choose from—18" to 19 ft. gangs. Leaf mulching attachments for all mowers. Ideal for industrial tracts, estates, parks and schools.

One demonstration will convince you! Write for complete literature and the name of your nearest MOTT dealer.



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## You can tell our safety shoes are made by dress shoe people

This shoe has every approved feature that a quality safety shoe should have—plus something extra. It has the good looks and handsome styling of a dress shoe—made by America's largest dress shoe manufacturers. All-round storm welting anchored firmly into place by expensive white fair-stitching, extended heel seat, rich redwood grain leather—all these are the carefully crafted details that tell you this

safety shoe was made in a dress shoe factory. #S-4387, with a leather-lined safety steel toe box and shank, nitro-crepe sole; in sizes A, B, 8-12; C, 7-12; D, E, EE, 6-12. For more about our other safety shoes and free safety posters write to *Thom McAn Safety Shoe Division, 25 West 43rd Street, N. Y. 36, N. Y.*

**Thom McAn**

Safety Shoes  
A Division of Melville Shoe Corporation

## Falls on Floors

—From page 48

at entrances and exits should be repaired as soon as they are noticed. Pavement or flooring may become cracked, chipped, broken, or dished. Joints in the entranceway formed by butting together different materials, such as concrete and terrazzo, often become enlarged and may present tripping hazards.

### Mats

89. It is recommended that mats be used at entrances to minimize the slipping hazard even where the walking surface is tile or terrazzo containing abrasive. The use of mats also helps to reduce the amount of moisture which may be tracked into the building during bad weather. Where the surface slopes, mats are essential.

90. Mats must be of a kind that

do not in themselves present tripping hazards, especially because of the tiny bottom surface on the heels being worn by many women today. Permanently installed recessed mats are preferable. Otherwise, surface mats which are left in position at all times should be used. They should have beveled edges and should be thick enough ( $\frac{3}{8}$  inch minimum) and large enough not to curl or slide easily.

91. Linked rubber mats have been widely used. In many instances, however, they are being replaced by vinyl plastic mats. The vinyl plastic is asserted to be superior to rubber in several respects: better color possibilities, slower rate of deterioration, better resistance to temperature extremes and to chemical action. Also, these vinyl plastic mats are being made with drainage holes too small to trap even the smallest spike heels.

92. Runner matting is available in both rubber and combination cord. Rubber seems to have fairly widespread application in aisles. A small amount of water on rubber matting apparently causes no slipperiness.

### Program for Prevention of Falls

93. To eliminate or reduce the number of falls of employees and customers on floors, the management of a store, hotel, other commercial establishment, or industrial plant should have the safety coordinator, or other person assigned to accident prevention, develop and carry out a company-wide program for the prevention of falls that in-

**Stop hearing loss  
before it occurs . . .**



## Keep NOISE below the danger level!

The H. H. Scott Portable Sound Level Meter helps you measure and control noise before it causes expensive hearing losses. Extremely compact . . . weighs just over two pounds . . . can be held and operated in one hand . . . is so easy to operate that even non-technical personnel can learn to use it in 5 minutes.



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- Designed for use with the H. H. Scott Portable Sound Analyzer and Impact Noise Meter — when detailed analysis of noise is required.

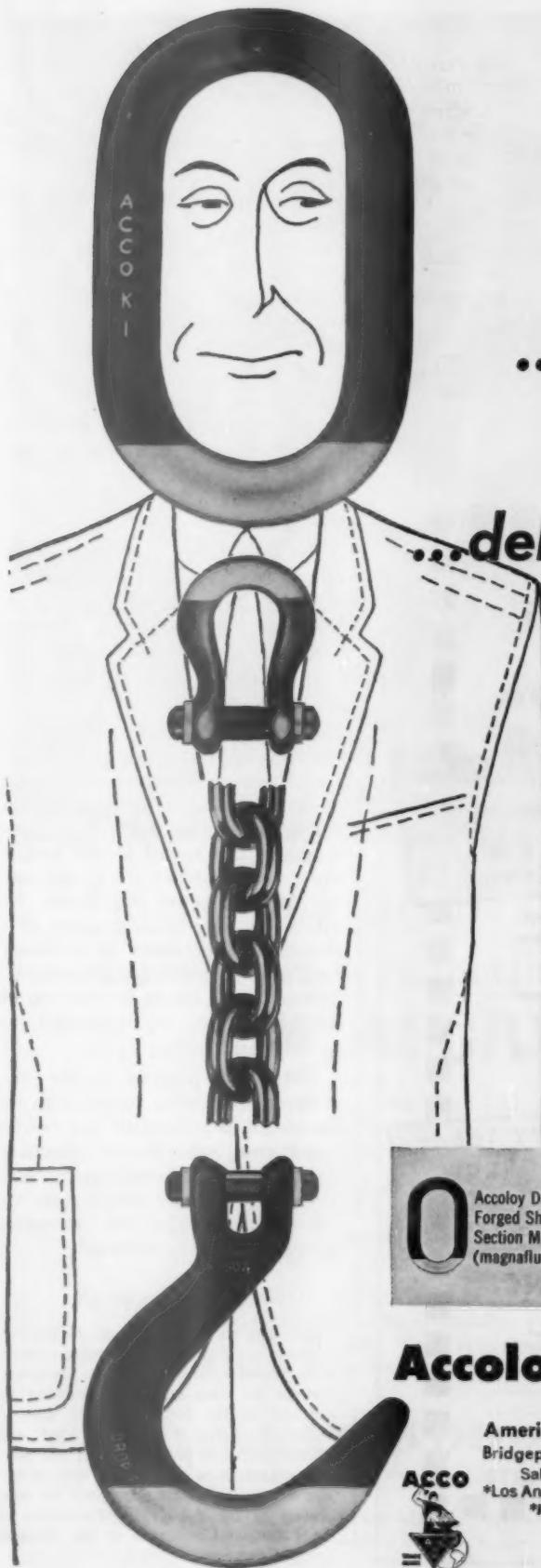
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Get complete information. Write for free copy of H. H. Scott's new catalog of Noise Measurement Instruments



"Stepped back to admire his welding."



## Kuplex Sling Chains

**...custom made to  
your specifications**

**...delivered the same day**

Now, you can have sling chains fitted to your specifications as easily as you buy a custom made suit. Your nearby Authorized Kuplex distributor is the man who will make all of this possible with same day delivery of Accoloy Kuplex Sling Chains assembled locally from matched components.

Kuplex is a safe, modern sling chain tried and proved through nationwide use. Its components are manufactured exclusively by American Chain of heat treated Accoloy steel, and factory proof-tested to be stronger than the chain itself. These facts are attested to in a Certificate of Test issued by Acco and signed by the Distributor who assembles and sells Kuplex slings.

Your Authorized Kuplex distributor can supply promptly from stock the exact sling chains you require. With the four components (shown below) he can make up single, double, 3-leg and 4-leg slings in six different chain sizes ( $\frac{1}{4}$ " through  $\frac{1}{2}"). If you don't know his name, contact our York, Pa., office.$



## Accoloy Kuplex Sling Chains

American Chain Division • American Chain & Cable Company, Inc.  
Bridgeport, Conn. • Factories: \*York and \*Baldock, Pa., \*San Francisco, Calif.

Sales Offices: \*Atlanta, Boston, \*Chicago, \*Denver, Detroit, \*Houston  
\*Los Angeles, New York, Philadelphia, Pittsburgh, \*Portland, Ore. \*San Francisco  
\*Indicates Warehouse Stocks



cludes at least the activities described in the following paragraphs.

94. Each customer or employee fall case, like every other accident, should be immediately and thoroughly investigated to secure all pertinent data, such as location, time, age and sex of victim, prevailing physical conditions or operating methods, and the like. Names of witnesses should be procured, as well as the names of employees who can testify as to the condition of the

floor, whether or not they witnessed the accident.

95. The employees should be instructed to touch the floor with their hands so that, if necessary, they can testify as to whether or not the floor was slippery. Further, a statement should be secured from the maintenance man, porter, or whoever cleans the floor as to when the area was last cleaned and what its condition was when he last observed it before the alleged fall.

96. Accidents should be reported promptly to the insurance company or to the proper persons in the organization if it is self-insured. Money can be saved by prompt and equitable settlement of accident claims.

97. Accident data should be summarized and analyzed to discover the causes of falls on floors and the areas producing an excessive number of such accidents so that operating methods or conditions in those areas can be improved.

98. To assure that maintenance and cleaning or porter service will be regular and effective, employees performing such work should be assigned to designated areas to perform their functions on a scheduled basis.

99. Orientation programs for all new employees should include basic training. Methods of preventing falls and the relationship between improper work procedures and fall hazards should be given particular emphasis.

100. Housekeeping surveys and inspections conducted periodically by the safety committee can make a vital contribution to the program for prevention of falls. These inspections can reveal unsafe conditions and improper work methods so that corrective steps can be taken. The inspection program also stimulates supervisors to maintain satisfactory housekeeping standards. Printed check sheets for the use of inspectors can be developed to facilitate the job.

101. If the program for the prevention of falls on floors is to be successful, it is essential that unsafe conditions and unsafe practices detected during housekeeping surveys, reported by employees, or otherwise revealed be promptly investigated and corrected.

#### ACKNOWLEDGMENT

This data sheet was prepared by the Engineering Committee of the Boston Chapter of the American Society of Safety Engineers. Content has been extensively reviewed by members of the National Safety Council and representatives of chapters of ASSE, and by representatives of other trades and services organizations and their associations. The data sheet has been approved for publication by the Publications Committee of the Industrial Conference of the National Safety Council.

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LIMA 356 NO ONE 102  
LAWRENCE 303 NO TWO 46

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BY ACCIDENT

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DON'T GET HURT

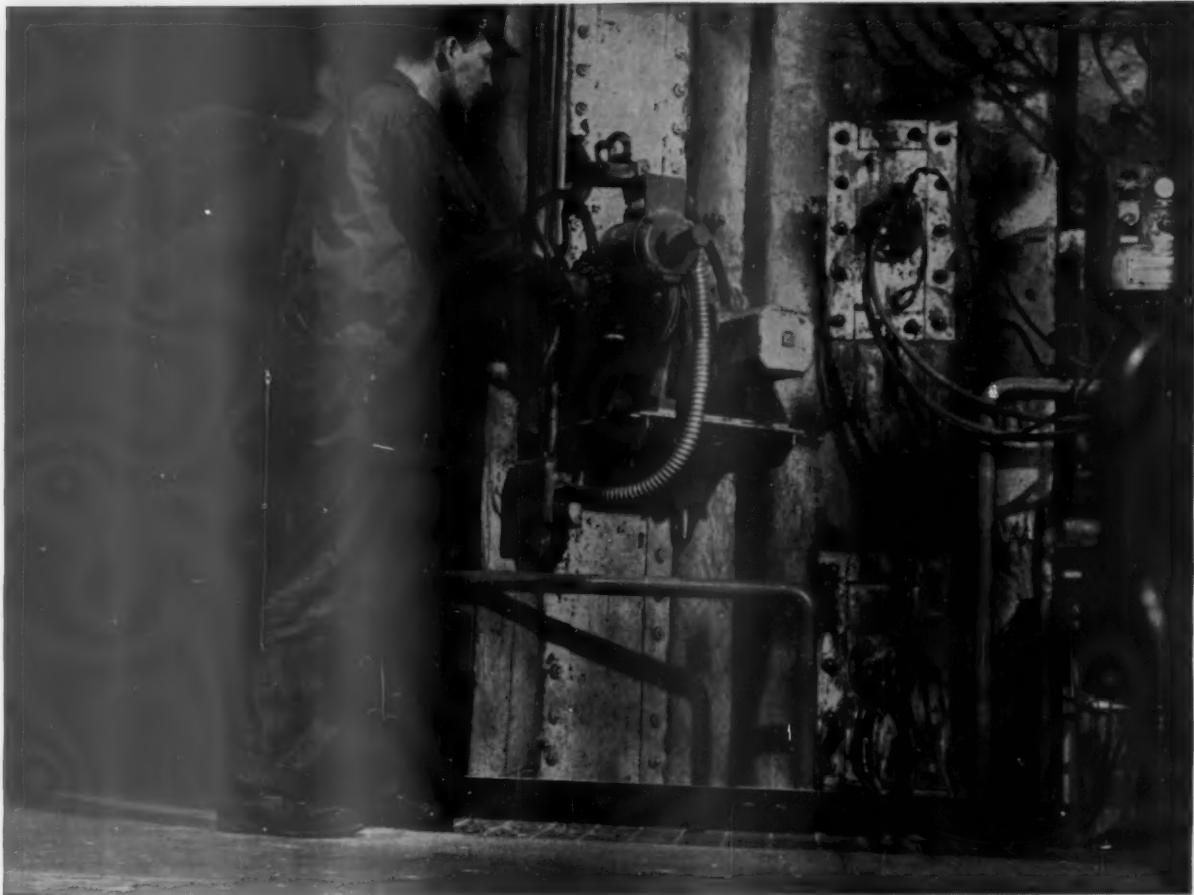
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THE SAFE WAY  
IS  
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## Philadelphia Electric Company workers get sure footing despite oil film with **A.W. ALGRIP**

Hot, heavy oil occasionally spills on this walkway at the Schuylkill Station of the Philadelphia Electric Company, but A. W. ALGRIP helps prevent accidents by providing assured footing.

A. W. ALGRIP rolled steel floor plate is produced by Alan Wood Steel Company by a patented process in which an abrasive—just like the kind used in grinding wheels—is embedded to a controlled depth. It becomes an integral part of a tough steel plate.

A. W. ALGRIP can be used as independent flooring . . . or as flooring overlay, on level or inclined surfaces. Put your plant on a safe footing, with A. W. ALGRIP . . . approved for Safety by Underwriters' Laboratories. Write for Bulletin AL-S1.



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Montreal, Toronto and Vancouver, Canada—A. C. Leslie & Co., Ltd.



## Powder Extinguishing

—From page 33

When this dry powder is applied to a triethylaluminum fire, it extinguishes only by adsorption of this liquid. Its initial application has no effect on the extinguishment of flame. It must be applied to the fires until a sufficient quantity is added to completely adsorb all triethylaluminum involved. Fire tests

involving 10 lbs. (about 1.5 gals.) in depth or in spills showed that 7 lbs. of powder are required for each pound of triethylaluminum.

The special dry chemical developed for use on triethylaluminum fires is a mixture of a bicarbonate base dry chemical and an activated adsorbent. Its flow characteristics are such that it can be discharged effectively from ordinary dry chemical extinguishers. The extinguishing action of this special dry chemical

differs from that of the graphite base dry powder, since the initial application extinguishes the flame. The continued application adsorbs the remaining fuel and prevents re-ignition.

This special dry chemical reacts slightly with the triethylaluminum during application, but this reaction does not hinder the extinguishment. Eight pounds of this agent are required for each pound of fuel when in depth, and 10 lbs. of agent per pound of fuel for spill fires.

Faster control of the fires is achieved with the special dry chemical than with the dry powder because of its flame extinguishing action. A considerable amount of dry chemical is carried away by the up-draft of the fire during the initial flame extinguishing phase, which accounts for the greater amount of this dry chemical required.

After extinguishment by either agent, the mixture of agent and fuel must be disposed of. The best method is to transfer the mixture to a dry metal container, applying additional agent if re-ignition occurs during transfer.

Existence of combustible metals has been known for years. Only when these metals were used in large industrial quantities did the problem of fire extinguishment become important. Dry powders were developed to answer this problem.

In the same way, when metal alkyls were known only in the laboratory, the fire extinguishment problem was minor. When their use increased, the Koppers Company, Ethyl Corporation, and Stauffer Chemical Company foresaw the problem, requested tests, and as a result special extinguishing agents are available.

## SPEAKMAN LIFESAVER emergency shower

Instantly floods worker under a rinsing deluge...  
drowns flames, washes off acids, chemicals and fumes



Accidents can slip through even the finest safety program. You protect your workers from these inevitable emergencies when you equip your plant or laboratory with Speakman LIFESAVER emergency showers. Carefully inspected and tested under water pressure, they assure durable, reliable performance under the hardest use. For indoors and outdoors.

Speakman Safety Showers and Fixtures are available in many types, sizes and combinations. For complete descriptions, write to Dept. NSN, ask for Safety Booklet S-88-A.



S-2075 Speakman LIFESAVER emergency shower. Size 1 inch. 8-inch cast brass self-cleaning shower head with adjustable face. Discharges 29 gallons per minute at only 30 lbs. pressure.

## SPEAKMAN COMPANY

WILMINGTON 99, DELAWARE

Circle Item No. 19—Reader Service Card

## No Correspondence Courses

In the list of universities and colleges offering courses in safety (Data Sheet 493, June News) New York University was listed as having extension courses. This was interpreted by several readers as meaning "correspondence" courses.

The university informs us that the extension services are direct services rendered in the New York area only and have no connotation of correspondence work.



# It costs less than a fourth of a cent to clean a pair of really grimy hands with Go-Jo Creme Hand Cleaner

Gojer, Inc., Akron, Ohio, manufactures a creme type hand cleaner that is truly effective in removing even the most deeply-imbedded grease, grime and stubborn industrial soils. Compounded from highest quality chemical ingredients, Go-Jo Creme Hand Cleaner still costs less than one-fourth cent per clean-up. Go-Jo Creme Hand Cleaner also has a skin conditioning action that workers appreciate. Formulated with soothing emollients, it guards hands against cracking, drying and chapping, and replaces natural skin oils that many industrial chemicals remove.

Go-Jo Creme Hand Cleaner contains GT-7, a powerful antiseptic, to help prevent industrial dermatitis, which is often caused by an accumulation of harmful bacteria. A report by an independent microbiological testing laboratory (name on request) spells out the facts: In tests performed under everyday working conditions, on subjects representing a wide range of occupations, Go-Jo Creme Hand Cleaner reduced the bacterial count on their hands by over 99%.

Heavy-duty "One-Shot" Dispenser by Go-Jo eliminates mess and waste and cuts hand-cleaning costs 75%. One pull of the handle delivers just the right amount for a quick, thorough clean-up.



FOR FURTHER INFORMATION, WRITE DEPT.

**GOJER, INC.**

Box 991  
AKRON 9, OHIO

## Fatalities in '59

—From page 19

Motor-vehicle accidents led in the next two age groups, with 53 per cent for 25 to 44 years, and 44 per cent for 45 to 64 years. Among persons 65 years and over fatal falls made up 55 per cent of all accidental deaths.

Only one catastrophe in 1959 caused more than 50 deaths. A scheduled airplane plunged into the

East River in New York City, killing 65. There were, however, four other catastrophes in which 25 or more persons died.

**Motor-vehicle accidents.** There were approximately 37,800 deaths from motor-vehicle accidents in 1959, a 2 per cent increase over 1958.

The vehicle mileage total rose in 1959, thus bringing the death rate per 100,000,000 vehicle miles to a new all-time low of 5.4.

Disabling injuries in 1959 numbered about 1,400,000. Costs, including wage loss, medical expense, overhead costs of insurance, and property damage amounted to \$6,200,000,000.

A fourth of the deaths, 10,000 were from accidents in cities and towns with more than 2,500 population; three-fourths, 27,800, from accidents in rural areas and towns under 2,500 population.

There were approximately 7,750 pedestrian deaths, an increase of 1 per cent from 1958, and 30,050 non-pedestrian deaths, a 2 per cent increase.

The age distribution of deaths, and changes from 1958, were as follows:

Age	1959	1958	Change
0 to 4	1,900	1,791	+6%
5 to 14	2,750	2,710	+1%
15 to 24	9,000	8,388	+7%
25 to 44	10,300	10,414	-1%
45 to 64	8,200	7,922	+4%
65 and over	5,650	5,756	-2%

**Work accidents.** The 1959 death total for work accidents was approximately 13,800, or 500 more than the 1958 totals. Disabling injuries numbered 1,950,000. The death total excluding agriculture was about 10,400 of which 1,900 occurred in manufacturing industries. Total cost amounted to about \$4,200,000,000.

In addition to the 13,800 workers killed while at work, 29,200 died from off-the-job accidents—a death total of 43,000. Workers injured in both kinds of accidents numbered about 4,200,000.

**Home accidents.** Deaths in 1959 totaled approximately 26,000, a decrease of 500 from the 1958 total. There were about 3,900,000 disabling injuries. Costs—including wage loss, medical expense and overhead costs of insurance—amounted to \$900,000,000.

Falls caused more than two-fifths of the deaths; burns, nearly one-fourth; all other types, only one-third.

Almost half of those killed were persons 65 years old and older. More than a fourth were children under 15 years. The remaining fifth were persons 15 to 64 years old.

**Public accidents.** There were approximately 16,500 deaths in public

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NEOPRENE CORK SOLES**

- The one Neoprene Cork Sole that does not compromise wear for weight
- Resist oil, grease, chemicals and acids



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Biltrite Safety Soles protect against more hazards . . . more comfortably. They are lighter, tougher . . . specially compounded for both safety and durability.



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**BILTRITE TRU-GLIDE  
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- Provide extra traction and gliding comfort
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**BILTRITE**  
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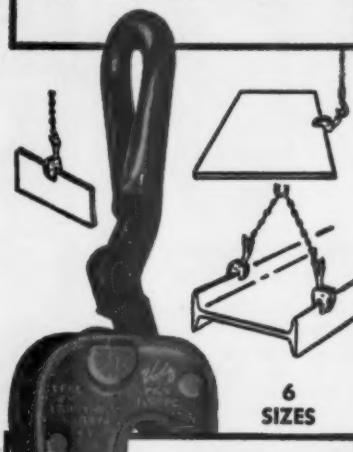
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Imitated, but never duplicated,  
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Devices described in our  
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non-motor-vehicle accidents during 1959, no change from 1958. Disabling injuries numbered approximately 2,050,000, of which 50,000 were permanent impairments. Wage loss, medical expense and overhead costs of insurance amounted to \$850,000,000.

Nontransport drownings comprised one-fourth of the deaths. Falls and transportation accidents (rail, air, water, and other—not involving motor-vehicles) each accounted for about one-fifth. All other types contributed about one-third of the death total.

Deaths were distributed by age about as follows: 65 years and older nearly one-third; 45-64 and 25-44 each one-fifth; 15-24 and 5-14 each one-eighth; children under 5 fewer than 10 per cent.

**Airplane accidents.** In 1959 there were 209 passengers and 40 crew members killed in 12 accidents occurring in the domestic passenger-carrying operations of scheduled air

carriers (including Intra-Alaska). The passenger death rate was 0.69 per 100,000,000 passenger miles, compared to 0.43 for 1958. Total deaths in all aviation accidents numbered about 1,600.

**Railroad accidents.** In 1959 there were 12 passengers and 1 crew member killed in passenger train accidents. The passenger death rate was 0.05 per 100,000,000 passenger miles compared to 0.27 for 1958.

Total deaths in all railroad accidents numbered 2,223, an 8 per cent decrease from the 1958 total according to the Interstate Commerce Commission. Injuries increased 3 per cent to 19,780. Grade crossing deaths numbered 1,268 compared to 1,341 in 1958. Trespasser fatalities went down 9 per cent to 665.

**Fire losses.** The 1959 estimate of fire losses in the United States was approximately \$1,047,000,000, according to the National Board of Fire Underwriters, 1 per cent less than the comparable 1958 total.



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60-53051L1—Mighty-Grip™ over-all Mighty-Dot™ Fabric



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43141J—Jumbo size Hot Mill



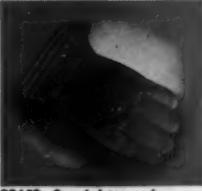
13011—8-oz. Canton flannel



28571A—18-oz. quilted double palm



95651—Leather palm, waterproof safety cuff



99652—Special tanned, green leather palm



43121—Large size Hot Mill



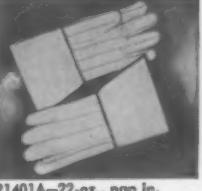
33011—Reversible, 8-oz. canton flannel



28071—18-oz. quilted double palm



72031—Leather palm with knit wrist



21401A—22-oz. nap in, double palm



64-72051—Leather palm, red Mighty-Dot® back

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Multiple steel plates . . . stronger than a solid block! Genuine brass-cylinder, pin-tumbler security. No finer padlock protection.



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Double-wall construction . . . 3 number brass locking mechanism. Available with "Key-Control" — one control key opens all locks.



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For switch boxes, chains, truck or freight car doors, and other uses where special shackle lengths are more desirable.



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WE ARE AN OUTSTANDING VALUE

**Master Lock Company, Milwaukee 45, Wis.**  
**World's Largest Padlock Manufacturers**

## Paint That's Alert

—From page 29

has two 500 gpm trailer pumps each.

The fire department has 14 firemen on each shift. Two fire inspectors are professionals assigned full time to Chief Clark's department. The others are volunteers chosen from plant workers.

Tops of all 37 hydrants have been painted blaze orange for quick identification. Similarly, the indicator posts around each of the 40 sprinkler shutoff valves throughout the area have been painted. Also painted are 28 divisional valves which control the loops around the plant for firefighting water.

In one of the large buildings a pipe guard rail in front of the fire signal panel has been painted to make it stand out. Located on a wall at one end of the building, the fire signal panel is an important part of the Pyr-A-Larm system, made and installed by Pyrotronics, a division of Baker Industries, Inc., of Newark, N. J.

This "electronic nose" can sniff a beginning fire far faster than the

human nose. It does not depend on visible smoke, flame or heat for operation. Sensitive detector heads are triggered almost instantly by traces of invisible combustion products.

**In-plant traffic.** All three of the yard locomotives at the Lester plant have been painted with blaze orange stripes. The engines move box cars, flat cars, gondolas and coal cars.

Often an engine and cars may be backing out from between buildings and at night the reflection of headlight beams from the fluorescent striping on the engine enables drivers of motor vehicles to spot the engine more quickly. There is a strictly enforced rule that a man must be out there when the engine is backing out, but visibility is an extra safeguard.

"We're close to the river and get lots of fog," says James H. Schoen, Jr., a transportation foreman. "But even on foggy days fluorescent paint catches your eye quickly."

Painting of posts, corner bumper plates, and similar obstacles has been a boon to drivers of motor vehicles. The transportation department operated a variety of these

prevent  
wet floor  
accidents  
with  
**CAUTION STAND**

**WET FLOOR  
CAUTION**

Highly visible, two-sided CAUTION STAND warns pedestrians away from dangerous, slippery floors . . . isolates cleaning work to avoid contamination of floors already cleaned. When not in use, the CAUTION STAND folds for compact storage. Contact your sanitary maintenance jobber today for this economical, important investment in safety!



product

**WALTON-MARCH** P.O. Box 248, Highland Park, Illinois

Circle Item No. 27—Reader Service Card

National Safety News, August, 1960



## Bethlehem Braided Sling handles 57-ton forging with ease

This generator-rotor forging for the Large Steam Turbine-Generator Department, General Electric Company, was no problem at all for this Bethlehem 8-part braided sling.

Bethlehem slings can handle just about any lifting assignment. Strong and flexible, they have good load-

hugging characteristics. We supply them in a wide variety of styles and sizes.

If you have a lifting problem, a Bethlehem sling may be just the answer you're looking for. Full information is available from the nearest Bethlehem sales office.  
**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

Export Distributor: Bethlehem Steel Export Corporation

### **BETHLEHEM STEEL**



Circle Item No. 28—Reader Service Card



## PRO-MO-LITE

*Great...  
even with  
hardest  
water*



Pro-Mo-Lite general-purpose liquid detergent saves you labor and money on a full range of floor cleaning jobs. Excellent for resilient and sealed wood floors . . . forms no soap scum on contact with free lime in old cement or terrazzo surfaces . . . for complete stripping or simple daily maintenance . . . leaves no slippery film . . . use with muriatic acid to clean and neutralize concrete floors in just ONE operation!



Write for  
information

**MYCO**

**MASURY-YOUNG CO.**  
76 Roland Street Boston 29, Massachusetts  
OFFICES IN PRINCIPAL CITIES  
Circle Item No. 29—Reader Service Card

vehicles, known around the plant as jitneys. These include battery-powered trucks for pulling trailers, flatbed jitneys with long tables on top for receiving and moving stores, work savers and fork-lift trucks.

Putting an objective yardstick on safety results obtained with paint isn't easy, says Carl E. Merris, plant safety supervisor. As he points out, it's difficult to determine what prevents an accident.

However, he is certain that visibility of obstacles has been greatly improved. After making tests, Merris estimates that even in late afternoon objects coated with fluorescent paint can be seen at least twice as far away as unpainted objects.

Merris cites one instance where fluorescent paint has definitely helped. Before the present painting program, a truck ran into a concrete abutment outside the blade shop one night. Since then the abutment has been painted with diagonal stripes and no accidents have occurred there since.

In applying any type of paint, the Westinghouse painting and lighting guide is followed. This comprehensive guide, issued by the office of H. B. Duffus, accident prevention administrator for Westinghouse, is used by all corporation plants.

**Future applications.** Other uses under consideration are listed by Merris:

1. On tops of chain racks in the shop to make them more readily visible to overhead crane operators.
2. Tops of such machines as planers and vertical boring machines, also for the benefit of overhead crane operators.
3. Where steam lines or pipe lines, the holding bracket for each line or even the pipe lines themselves might be painted. Outside contractors often use boom cranes high enough to hit these overhead lines.
4. Corner bumper plates at aisle intersections for the benefit of jitney drivers. These bumper plates consist of pipe standards sunk into the floor close to wall corners with a plate welded to the vertical pipes.
5. In balconies where time clocks are near the aisles, painting vertical pipe standards in front of the clocks would increase visibility to jitney drivers.
6. Curbs beside roadways.

"While we are highly pleased with the results," Merris declares, "I wouldn't recommend over-using fluorescent paint. If everything is painted with it, it loses its effect."



### The Case of the Lanyard that broke the Fall, and the Man!

The lanyard was strong enough, the anchorage was solid—but the man in the case wasn't so solid. He was seriously—perhaps fatally—injured, because his lanyard had strength alone, but not the resilience needed to s-l-o-w the fall and minimize the shock!

**Safe-Hi  
Unolyn Shock Absorber  
for Lanyards**



is engineered to provide stretch to decelerate the falling man gradually without damaging shock or rebound. The stretch must be in the lanyard not the belt. Safe-Hi Safety Equipment is safe—just as safe as continuing research and a lifetime of experience can make it. Complete information on Safe-Hi Unolyn Shock Absorber Lanyards, Safety Belts, Ladder Shoes . . . yours FREE. Just write for Catalog.

RO-1

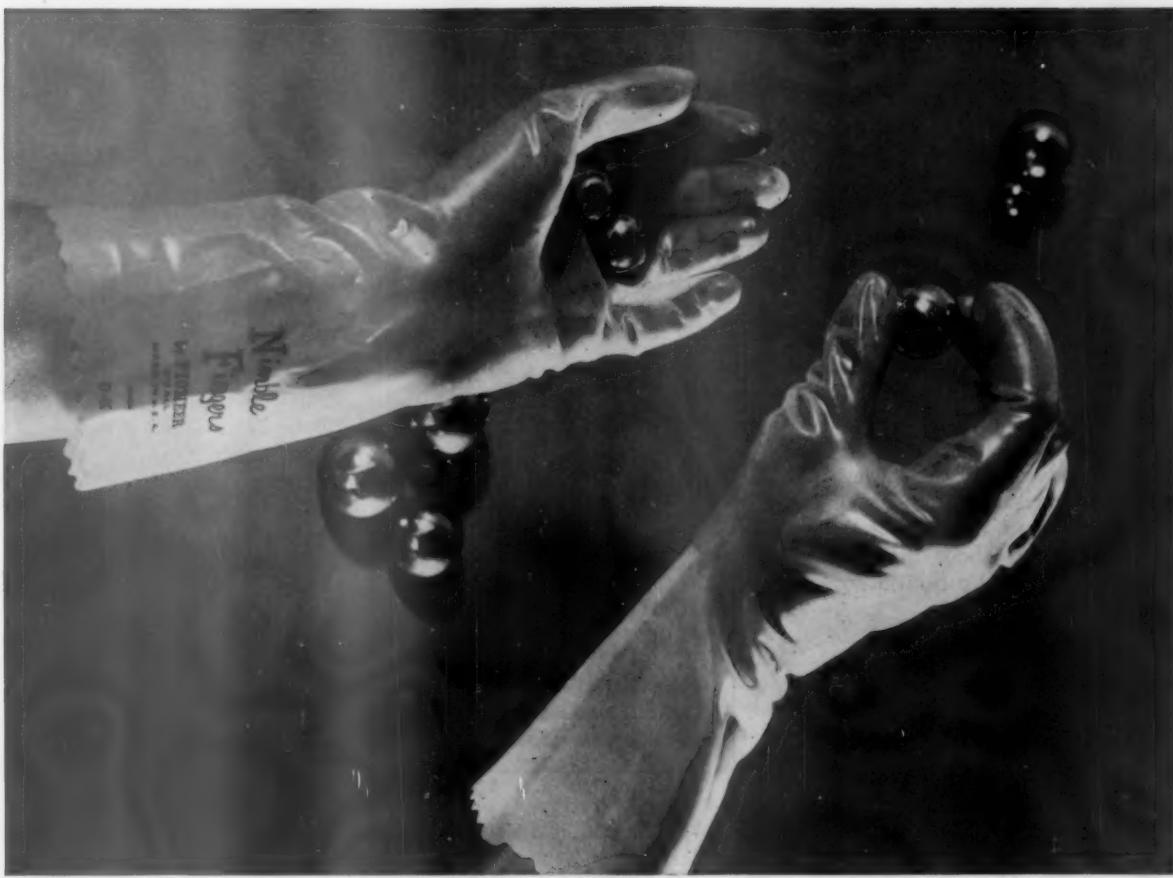
**Safe-Hi**  
Safety Equipment is made by

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© ROSE MFG. CO.

**manufacturing co.**

2700 W. Barberry Place, Denver 4, Colo.  
Circle Item No. 30—Reader Service Card

National Safety News, August, 1960



## PIONEER Protects Products from Hands



- Sheer liquidproof industrial gloves for dexterity
- Protect products during handling
- Hand protection for light industrial applications

Style Number	DESCRIPTION			Hand Only	Hand Wrist	Hand Forearm
	Material	Finish	Color			
0808	Sheer Latex	Smooth	White	7½"	—	—
V-10	Sheer Pylox	Non-slip*	Yellow	—	10½"	—
RSW-13	Sheer Neoprene	Non-slip	Coral	—	10½"	—
7852	Sheer Neoprene	Smooth	Green	—	10½"	—
0754	Sheer Latex	Smooth	White	—	10½"	—
4754	Sheer Latex	Smooth	Brown	—	10½"	—
0794	Sheer Latex	Non-slip	White	—	10½"	—
V-20	Medium Pylox	Non-slip*	Yellow	—	10½"	—
0763	Sheer Latex	Smooth	White	—	—	18"

\* Smooth models may be reversed to provide non-slip grip

### Send For PIONEER's Revolutionary "Foolproof Glove Selector"

Helps you solve many hand protection problems — whether they involve chemicals, abrasion resistance, worker fatigue, extreme hot and cold temperature, or products that must be protected from hands! Eliminates costly errors in glove selection.



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(S)

Please send me:

- New "Foolproof Glove Selector" by Pioneer  
 New PIONEER Industrial Glove Catalog  
 17" x 22" Full Line Glove Wall Chart

Firm \_\_\_\_\_

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City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Requested by \_\_\_\_\_

**the PIONEER Rubber Company** Willard, Ohio, U.S.A.  
 Manufacturers of Famous Stanzoil Industrial Gloves

# THE ACCIDENT BAROMETER



Prepared by the Statistics Division  
National Safety Council

**ACCIDENTAL DEATHS** in April totalled approximately 7,100, or 4 per cent above April a year ago. More deaths resulted from motor-vehicle and home accidents, fewer from work, and about the same number from public non-motor-vehicle accidents.

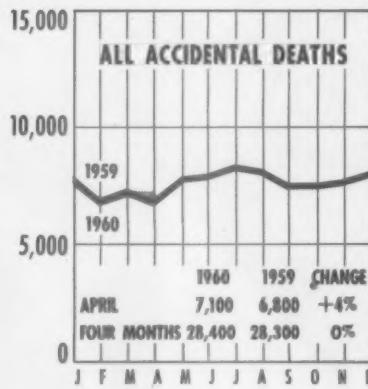
The four-month death total was 28,400, up 100 from 1959, a change of less than half of 1 per cent. Increases in home and public non-motor-vehicle accident fatalities were nearly offset by decreases in motor-vehicle and work.

## Motor-Vehicle Deaths

The motor-vehicle death total in April was 2,910, or 10 per cent more than last year.

The death total for four months was 10,590, a reduction of 1 per cent from 10,730 a year ago. The four-month death rate per 100 million vehicle miles was 4.7—a decrease of 6 per cent from 1959.

For the four-month period, 30 states had fewer deaths than last year, 1 had the same number, and 18 had more deaths. States with the greatest improvement for the first four months of the year were: New Hampshire,—40 per cent; North



Dakota,—38 per cent; and Vermont,—34 per cent.

Reporting cities with populations of more than 10,000 had an increase of 9 per cent for April and 1 per cent for the four-month period. Cities with more than 200,000 population having the largest reduction in deaths for the first four months of 1960 were: Grand Rapids, Mich., —71 per cent; Omaha, Neb., —64 per cent; and Miami, Fla., —62 per cent.

## Work Accidents

Deaths from work accidents totalled about 1,100, or 100 fewer than last year. The four-month death

total was 4,300, a decrease of 2 per cent from 1959.

The April frequency rate per 1,000,000 man-hours in 21 sectional accident prevention contests conducted by the National Safety Council was 6.68, an increase of 5 per cent over last year. The four-month rate was 6.13, a reduction of 4 per cent.

## Public Deaths

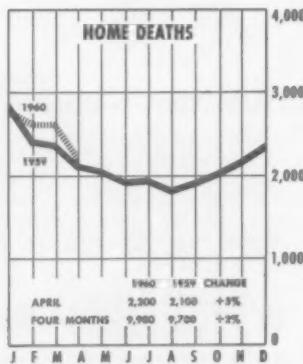
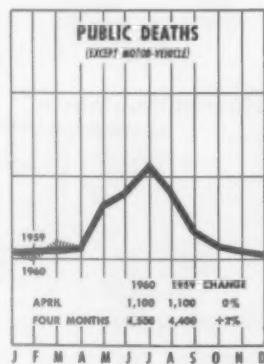
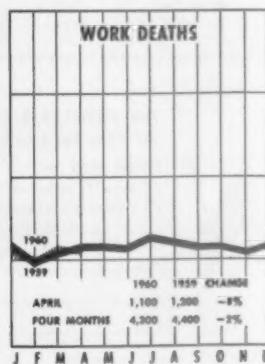
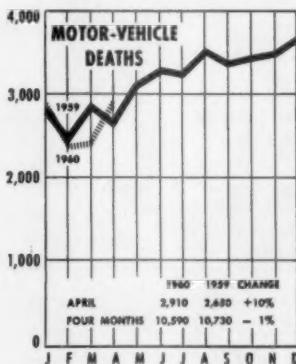
There were approximately 1,100 deaths from public non-motor-vehicle accidents in April—no change from 1959.

The four-month death total was 4,500, an increase of 2 per cent over last year. More deaths resulted from drownings, transportation, and firearms accidents and fewer deaths from fires and burns and falls. Increases in deaths occurred among children 5 to 14 and young people 15 to 24 years old; other age groups showed decreases with the greatest improvement recorded for children under 5 years of age.

## Home Deaths

Home accident deaths in April numbered 2,200, or 100 more than last year.

The total for four months was 9,900, a 2 per cent increase over 1959. Most of the increase occurred in fatal poisonings and firearms accidents but deaths from fires and burns also were up. There were fewer deaths from mechanical suffocation and poison gases and about the same number from falls. Aside from a large decrease in deaths of young people 15 to 24 years old, all age groups showed increases over 1959 with the largest change recorded for persons 25 to 44 years old.





## *Look for this ad!*

It's about safe driving, and it's appearing in August issues of *Reader's Digest*, *Life*, *The Saturday Evening Post* and other widely read magazines.

Because you're interested in safety, you'll be interested in this Bell System ad. It's designed not only to tell people about our constant concern with safety on the highways, but also to stimulate public awareness of the life-saving benefits of defensive driving.

It's in the form of a quiz—take a crack at the questions yourself. If some of them make you think twice, that's good. The aim of the quiz is to jog us all into a review of our driving habits and make us take care whenever we're behind the wheel.

Indifference to safety on *anyone's* part endangers *everyone*.

BELL TELEPHONE SYSTEM





### TOE GUARD→

fills a demand for toe protection in occupations where hazards injurious to toes exist. They fit any shoe, afford maximum toe protection, and like the foot guards do not encase the toe to the discomfort of the worker. (Style #702 illustrated.)



**FOOT GUARDS** consist essentially of a metal shield to be worn over the shoe whenever the foot is in danger of being either crushed or cut. The metal shield is designed to furnish a maximum amount of protection to the entire foot—not merely to the toes alone, but also to the instep—against hazards from falling, rolling or flying objects, or from accidental tool blows.



### COMBINATION FOOT AND

**SHIN GUARD** (right) consists of a shin guard fastened to the foot guard in a manner permitting free action of the leg in any direction. Constructed of light but strong aircraft quality aluminum alloy. (Style #400 illustrated.)

For more information write today

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225 SIXTH ST.—NSC ELLWOOD CITY, PA.



#### ALPENCO LENS CLEANER AND ANTI-FOGGING LIQUID

No. 10 unit  
Illustrated \$4.25  
each. 6 or more  
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Write for  
Literature and  
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Test Sample.

Jobber Inquiries  
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One easy application in a "combination" liquid. Quickly cleans off dirt, grease and grime; prevents fogging in the hottest, steamiest areas. Heavy duty wall unit for plant use; 4 oz. squeeze spray bottles for individual use. For Safety and Prescription Glasses • Faceguards • Hoods • Helmets • Inside of auto, truck, bus and train windshields • Windows • Mirrors • Refrigerated Showcases—glass, plastic and metal . . . All surfaces subject to steaming and fogging.

**ALBERT W. PENDERGAST**  
safety equipment co.  
6936 Tulip St., Philadelphia 35, Pa.

### Tinted Optical Media

—From page 14

brightness in proportion to the density of the glass. Glasses are essentially neutral, or they have certain physical properties of shape, size, polish, base curvature, or color. Advertising must not imply that any of these characteristics are of physiological benefit.

#### General Comment

Sunglasses, generally, should be worn only when intensity of light produces discomfort. The penalty for their wear otherwise is reduction of tolerance to bright light. Unless indicated by ocular pathologic processes, habitual use of sunglasses indoors is most objectionable.

Investigations have shown that prolonged exposure to bright sunlight subsequently impairs night vision. This factor is extremely important in some military situations but of questionable importance in civilian life.

The motorist viewing the road ahead under headlights is dependent chiefly on photopic vision, and photopic vision is not appreciably improved by the use of sunglasses. Inadvertent wearing of sunglasses at dusk probably constitutes a much greater hazard than any possible decrement in vision at low levels of illumination.

No commercially marketed sunglass is sufficiently dense to permit direct gazing at the sun. Much denser filters are needed for viewing a solar eclipse.



"Check the wiper blades. Can't see."

## Safety's Ups and Downs

—From page 25

"The Fundamentals of Supervision" which included a prominent pitch for the supervisors' responsibility with regard to safety. Semiannual safety chairmen training conferences were initiated. Also during this period the company was engaged in an all-out effort at driver training and accident prevention. It has been concluded that the combination of these programs was responsible for this improvement in accident frequency.

By 1952 the immediate effects of these programs had probably worn off and the employees were prey to the disturbing effect of the Korean war which was well upon us. A "plateau" of accident frequency was maintained for several years where the trend was essentially level. In 1955 and 1956 the stock market was rising rapidly, industry production was up and things were looking pretty rosy to the average employee; his safety attitude was surely again improving. In 1957 the beginning of the so-called recession was apparent and the graph again shows the suggestion of an adverse trend.

The year 1958, in retrospect, seems much more colored with crises and climaxes, changes and challenge than usual. The economic climate of the nation and of the petroleum industry had its effects on the lives of Humble employees who were confronted with decreased activity in oil production, reduced capacity of refinery runs, organization changes, modernization and some changes in personnel. Many of these changes continued into 1959, which is shown to be the third consecutive year where the accident frequency has increased—the third consecutive year when economic and emotion-producing changes apparently have been disturbing us and our safety attitude. Even though the frequency is low by industry standards, the trend is disturbing.

We have discussed examples of the effect of economic and emotional changes on safety. Now let's summarize and see what we can do about it. We are now adequately aware of what the economic conditions of 1958 and 1959, along with the internal changes that have

occurred in most of our organizations, could have done to our attitudes. With this effect on attitude we should have recognized the danger signs—fear and worry. We need to recognize and respect these as principal hazards, for it appears evident that these factors of human emotions definitely affect the individual worker's safety consciousness which in turn is reflected in accident experience. Recognizing this, the role of the foreman or supervisor becomes more important in periods of such drastic change.

The supervisor should feel personally responsible for the safety consciousness or attitude of the men working with him. He should also realize that his men will react to safety in his example. He should attempt to recognize as early as possible any deficiency in the safety attitude of his men and correct it before it results in accident and injury.

To assist the field supervisors who are most directly associated with operational work hazards, the company must provide certain aids. One of the most important of these is

## "We had too much faith in Harry...."



"Harry's been here for years. We trusted him. Nobody needed proof of his reliability—we thought."

"But Harry was tired last night. He napped on the job. The fire engines awakened him."

"My life's work went up in that fire. So did 147 other jobs—including Harry's."

You need proof of every guard's reliability. And that's what you get with the tape-recording DETEX Guardsman Watchclock System—tamper-proof, minute-by-minute evidence of your guard's vigilance.

Guardsman supervision saves money while protecting your property. Even over long holidays and weekends, there is no need for a supervisor to return to the plant to change a 24-hour dial. Shall we send complete information?



DETEx

WATCHCLOCK  
CORPORATION

Dept. W-8, 76 Varick Street  
New York 13, New York



The Guardsman—and all DETEX dial-type clocks—are approved by Factory Mutual and Underwriters Laboratories.

communication. Probably the best way to alleviate fear and anxiety in the individual employee is to keep him fully informed about company activities and changes which might influence him personally. The more information which can be passed to the individual, the better will be his morale and attitude. This certainly will be reflected in his safety consciousness.

A second important factor is continued training at all levels. We have shown one example where favorable results from supervisors' and drivers' instruction courses were sufficient to reverse what was elsewhere a disturbing accident experience trend. Some formal training courses, such as first aid training, occasionally can be presented to all members of an employee's family. This tends not only to reduce accidents which occur on the job but to reduce the off-the-job injuries which in number greatly exceed those suffered at work.

A third step is the formulation and continued presentation of a co-ordinated safety program, for unless safety is made a live and continuing thing it may too soon be forgotten.

While repetition in safety is commendable, continued use of the same approach or same type of program without new or attractive slants may result in its being taken for granted and less effective. New ideas may be found, for example, by looking to other industries' safety programs.

My company recently presented a program called "Knowing's Not Enough," developed by United States Steel. It has now been presented by more than 400 companies. This program puts the emphasis where it is most needed in times of great change. It encourages the employee to use his know-how at all times.

This program has made the yellow flag a symbol of warning that "knowing's not enough." In a series of posters, the principal causes of accident are represented by a series of figures called "imps"—impatience, improvising, impunity and impulse. The format is catchy and the presentation can be impressive.

By enthusiastically using the three elements—an aggressive safety program, continuous awareness of supervisor safety training and, most

important, a high level of communication, we hope that our industry's safety will not merely adjust with the change but that we will adjust before the change.

Looking toward the future, I would like to say that I am very optimistic about our safety accomplishments. The main danger may be that of slipping into the attitude of a farmer in a widely circulated story. A new agricultural agent, fresh out of college, called on the farmer. He offered to provide all kinds of pamphlets on crop rotation, terracing and other essentials of modern agriculture.

"Much obliged," the farmer drawled, "but I'm not farming as good now as I know how."

We are all familiar with the potential dangers of that attitude. If there are any shortcomings in our future effort, they will not be attributed to deficiencies of safety techniques, equipment or lack of knowledge. It seems more likely that we will just "not be farming as good as we know how."

#### Correction

In the report of the spring meeting of the Council's Industrial Conference in the July News an incorrect statement concerning the Data Sheets appeared: "Under this plan, an individual can subscribe to a regular service and be brought up to date as each new Data Sheet is produced."

Following are the facts concerning this service:

1. Complete Data Sheet sets contain all Data Sheets published to the end of the calendar year prior to the year of purchase.

2. Maintenance service will be provided once a year in one mailing to be sent out in December. This one mailing will include every new Data Sheet published after the last complete sets were assembled; that is, all sheets published during the current year, plus all sheets revised during the current year. In addition, new indices will be furnished with instruction sheets, etc., cited.

3. Additional complete sets made up during the year will be the same as earlier sets and will not include sheets published during the interim.

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IN SAFE HANDS  
with SURETY  
SURESEAL GLOVES

#### SURESEAL MOST SPECIFIED WHERE

- ✓ the handling of acids and other corrosive materials demand maximum hand protection.
- ✓ production requirements prescribe fast, sure handling of caustic liquids.
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Surety Sureseal Gloves, (made from Hycar) give positive protection against the greatest number of acids and other corrosive liquids and wear up to 14 times longer than competitive materials. They are more snag, abrasion and puncture-proof and the exclusive Surety Turn-Cuff gives added protection for arms and prevents liquid from getting into the glove.

Tell us your requirements and test a pair today—at our expense. Write on your letterhead naming your glove jobber and you will receive a pair by return mail.

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IN CANADA: Safety Supply Co., Toronto

# "TROUBLE SAVER"<sup>®</sup>

## Safety Ladders by...PS CO.

- Flared design
- Expanded metal treads. Steel angle reinforced
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### STEEL LADDERS WITH HANDRAILS

20" and 30" widths, from 2-step to 12-step in heights from 19" to 114" to top step. With casters.



offer many  
opportunities  
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WRITE FOR BULLETIN SL-I



FOR GREATER SAFETY...EFFICIENCY...ECONOMY



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Circle Item No. 36—Reader Service Card

National Safety News, August, 1960

**NEW** ADVANCED DESIGN  
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## "GOLD MEDAL" LADDERS

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### SELF-ACTUATED PAIL REST

opens and closes  
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**NEW**

- No nails—tie rods pass thru step grooves or recessed knee braces for stronger, longer-lasting support on Tioga, Samson, Utility, Electric, Underwriter Stepladders

**NEW**

- Heavy gauge top iron wraps around ends of top piece for extra strength—on Tioga, Samson, Utility and Electric

**NEW**

- Non-split, two-piece top riveted to iron support of Tioga, Samson, Utility, Electric

These four exclusive design features of "Gold Medal" Step Ladders are truly functional, and are not gingerbread. They were adopted after considerable study, with the sole purpose of making famous "Gold Medal" Step Ladders even more durable.

Flush step construction, a plus feature incorporated about two years ago, is another example of the constant search for ways to improve "Gold Medal" Ladders for every purpose, with top quality in every price range.

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Circle Item No. 37—Reader Service Card

Circle Item No. 38—Reader Service Card →



Jerk this hoist hook... turn  
it upside down... when gate  
is closed in every accidental hoisting  
condition, loads are locked-in, protecting  
men and materials. This radically  
different Bullard **Tip-lock** safety hoist hook  
is so rugged and simple it will operate  
for years with practically no maintenance  
... yet the **Tip-lock** hook is made with  
such precision a touch of the finger will open  
the gate leaving the hook's throat 100% clear.

*Write for New Bullard Tip-lock safety hoist hook data sheet*





**TECHNICAL  
FEATURE  
SECTION**

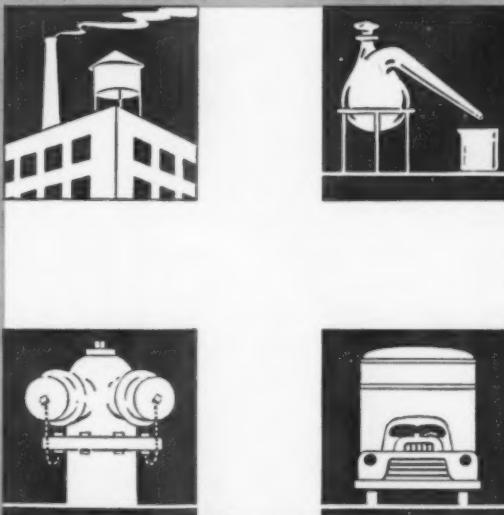
**The Journal  
OF THE  
AMERICAN  
SOCIETY  
OF  
SAFETY  
ENGINEERS**

**SPECIAL ISSUE**

**TODAY'S  
SAFETY  
ENGINEER  
in Industry,  
Business and  
Government**

by E. Peter Marconi

REPORT OF THE SOCIETY'S SPECIAL  
COMMITTEE ON MEMBERSHIP SERVICES



**AUGUST, 1960**

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OF SAFETY ENGINEERS**

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*November Issue To Present  
Unusual Group of Articles*

■ OUR USUAL *Journal* practice of featuring discussions on accident control techniques has been interrupted, for this issue, to present the report of a special survey on the professional position of today's safety engineer—certainly a most important contribution to career information in this field.

However, with our next *Journal* issue in November we plan to return to "normal" with a schedule of three varied and interesting articles.

Philip J. Bailey, appearing as a *Journal* author for the third time, will tell of his experiences in lecturing, early this year, to an industrial safety study team of 11 Yugoslavians who visited the United States from their nonsatellite but Communist homeland.

In a technical article, W. W. Allison will discuss "Safe Use of Rupture Discs" and the effects of temperature on the rupture pressure, a subject on which little published material is available.

A most unusual article on "Appraising Safety Effectiveness" by Dr. John V. Grimaldi, another author whose work has been published in two previous *Journal* issues, will report on a study which relates cost accounting data to safety performance and provides a yardstick for predicting safety experience.

—Editor

## OUR PRESIDENT SPEAKS ON SAFETY

A MOST IMPORTANT function of any professional society is informing its membership on matters of significant interest to the profession. In keeping with this philosophy, this entire *Journal* issue is being devoted to publication of a recently completed study and analysis of the organizational status of the professional safety man as reflected by our Society membership.

This report, covering the results of a questionnaire survey of the membership, has been prepared by the Society's Special Committee on Membership Services, which also conducted the survey. More than two years of extensive, intensive and dedicated committee effort has gone into this project in order that we might take a really objective look at the position we occupy and the functions we perform, professionally, in modern industry, business and government.

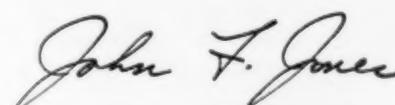
This is the second such study made by our Society. The first survey, in 1953, was cosponsored for general release by the American Management Association. This effort brought into focus many pertinent facts about our operations and had a marked effect

in improving the status of our members and giving wider professional recognition to our Society.

It is my feeling that this current study has even greater significance; it embraces a much wider area of response and the data presented are in greater detail and consequently more meaningful. I believe the report presented on the following pages represents a major step forward in understanding the Society member. It also shows, when compared with the 1953 study, that as the safety profession has grown in dimension its members likewise have expanded their responsibilities and areas of service. This in itself is evidence of improved professional stature and wider acceptance of the importance of our function.

An activity such as this survey is indicative of the desire of your national officers and Executive Committee to give tangible services to the Society membership—services which are vital to true professional growth. By taking a critical look, every few years, at who we are, what we are and where we are, we can learn more about "ourselves," can better insure our individual interests and can plan more objectively for future development and additional services to our members.

Through the broad dissemination of this type of information, we can promote more aggressively a sound expansion and growth for our Society as the true vehicle of expression and representation for the safety professional. Making the information in this report available reflects our determination to uphold our ideals firmly and to maintain an integrity of spirit and unity of purpose which strengthens our cause and dignifies our position as professionals.



JOHN F. JONES, PRESIDENT  
AMERICAN SOCIETY OF SAFETY ENGINEERS



# TODAY'S SAFETY ENGINEER

## *...in Industry, Business and Government*



The survey presented here, a project of the Society's national Special Committee on Membership Services, has been conducted under the leadership of E. Peter Marconi, who has been serving as chairman of this special committee since 1955.

The study was initiated in 1957, when the first draft of the proposed questionnaire was written. First and second drafts were reviewed by IBM specialists and Society staff. A third draft was sent to a selected group of 50 Society members. The 32 replies received were used as a basis for changes in two further drafts of the questions, prepared by Chairman Marconi and the then Society president, Henry B. Duffus.

Executive Committee approval of the fifth draft was obtained in early 1958, and the questionnaires were mailed to all Society members in August of that year. Tabulation of the answers was carried out under the supervision of Chairman Marconi, who wrote this Journal report of the findings. Serving as a Board of Review

for the report were John F. Jones, Society president; John V. Grimaldi, second vice president; Arthur H. Christian, Eastern Region vice president; Merrill C. M. Pollard, Northeast Region vice president.

The Special Committee on Membership Services especially thanks Charles S. Wolff, former assistant to the managing director of the Society, for his valuable assistance in all phases of the project.

In addition to Chairman Marconi, committee members during the time this study was being prepared, conducted and tabulated—and their years of service on the committee—are as follows:

William T. Aaron, 1959-60; David F. Abernethy, 1956-59; James B. Austin Jr., 1956-58; Thomas J. Berk, 1957-59; R. C. "Chet" Childress, 1958-60; Gerard O. Griffin, 1956-60; William A. Hartrey, 1959-60; Arthur J. Naquin, 1956-58; Merrill C. M. Pollard, 1956-58; William H. Powers, 1959-60; Karl Schulze, 1956-60; Eugene W. Stuffing, 1958-60.

BY E. PETER MARCONI

ON JULY 8, 1958, a questionnaire was mailed to the 7,242 members of the American Society of Safety Engineers. In order to encourage cooperation, replies were anonymous. (Wording of the questions is shown on the inside back cover of this *Journal* issue, opposite page J-48.)

On September 15, 1958, the closing date for returns, 3,754 replies had been received, a return of 51.8 per cent. This large response supports extrapolation of survey results to the entire Society.

The purpose of the survey was to learn about the background and present status of members. The data obtained would help to guide the Society in serving its members. Individual members would be enabled to make comparisons in the light of national data on activities, title, salary, education and experience.

A survey on similar subject matter, but much more limited in scope, was conducted in 1951 and was published in 1953 in cooperation with the Society for Advancement of Management. Comparisons with results of this earlier study are made in the report below, where appropriate.

Figure 1—Distribution by Membership Classification

MEMBERSHIP CLASSIFICATION	TOTAL SOCIETY MEMBERSHIP*		SURVEY RESPONDENTS		
	COLUMN 1 NUMBER	COLUMN 2 PER CENT	COLUMN 3 NUMBER	COLUMN 4 PER CENT OF CLASSIFICATION	COLUMN 5 PER CENT OF SURVEY TOTAL
Member	3,364	46.5	1,990	59.3	53.0
Associate Member	1,715	23.7	954	55.6	25.4
Junior Member	1,213	16.7	516	42.5	13.7
Affiliate Member	819	11.3	200	24.4	5.3
Life Member	131	1.8	42	32.0	1.1
TOTAL	7,242	100	3,754**	51.8	98.5

\*September 15, 1958.

\*\*Includes 52 respondents who did not state their membership classification.

#### DISTRIBUTION BY MEMBERSHIP CLASSIFICATION

Figure 1 shows that the survey sample is a representative one from the standpoint of distribution by member classification.

In general, the percentage of replies increased with the membership classifications assigned to the more experienced members, as indicated in Column 4. Matching of classification and return was closest in the Associate Member group: 23.7 per cent of the membership, 25.4 per cent of survey replies (Columns 2 and 5).

Persons in the Member classification provided 59.3 per cent of the returns, although comprising 46.5 per cent of the total Society membership.

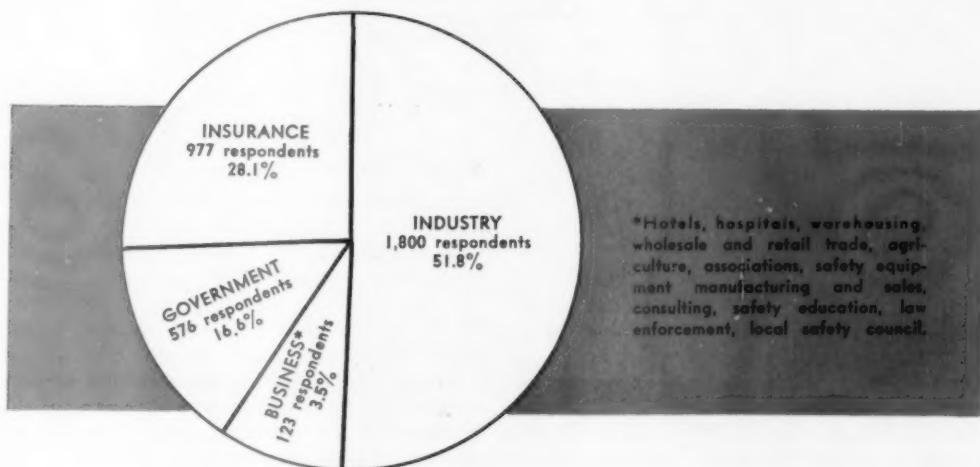
In the tabulations which follow, both Affiliate and Life Members have been omitted. In 1958 when the

questionnaires were completed, Affiliate Members primarily were persons engaged in fields related to accident prevention, such as safety equipment sales. (A later expansion of this membership classification to include beginners in the safety engineering profession is not applicable here, since in 1958 this latter category carried the Junior Member designation.) Life Members are predominantly retired from active work.

#### DISTRIBUTION BY EMPLOYER GROUP

Figure 2 shows that about one-half of the respondents are employed in industry and about one-fourth in the insurance field. A breakdown of the industry group is given in Figure 3.

Figure 2—Distribution by Employer Group



**Figure 3—Distribution within Industry Group**

Industry	Number of Respondents	Industry	Number of Respondents
Aircraft Development, Manufacturing and Maintenance	73	Rubber Products	31
Automobiles and Automotive Equipment	61	Sheetmetal Products	12
Cement	14	Shipbuilding	8
Chemical	259	Steel	135
Construction	58	Textile	21
Electrical Equipment	91	Wood Products	14
Food	84	Air Transport	7
Iron and Steel Products	31	Railroad	3
Leather	2	Transit	4
Lumber	9	Highway Freight and Warehousing	6
Machinery	48	Marine Transportation	13
Meat Packing	2	Pipeline Transportation	2
Mining—Metal	26	Service Allied to Transportation	16
Mining—Anthracite	1	Telephone, Telegraph, etc.	47
Mining—Bituminous	1	Radio and TV	4
Non-Ferrous Metals and Products	69	Electric Utility	114
Non-Metallic Mining and Quarry	4	Gas Utility	22
Petroleum and Natural Gas	242	Local Utility (Water, Sewage)	13
Printing, Publishing, etc.	3	Not Stated	164
Pulp, Paper and Allied Products	68		
Railroad Equipment	6	Total	1,800

**Figure 4—Distribution by Region (Chapters Only)**



#### GEOGRAPHICAL DISTRIBUTION

Figure 4 shows the response by regions.

Thirty-six replies were received from South America, Asia, Europe, Mexico, Central America and Africa. It is not known how many are foreign nationals and how

many are U. S. citizens on foreign duty.

Distribution of Society membership and of survey returns, by chapters, are shown in Figure 5. Omitted is the distribution by state of residence of the 555 respondents who are not members of a chapter.

Figure 5—Distribution by Chapter

Chapter	Total Membership	All Respondents*	Per Cent Return	Rank By Per Cent Return	Chapter	Total Membership	All Respondents*	Per Cent Return	Rank By Per Cent Return
Metropolitan	637	330	51.8	29	Greater Baton Rouge	43	25	58.1	18
Greater Chicago	310	158	51.0	32	Colorado	44	26	59.1	15
Los Angeles	272	137	49.5	36	Fort Worth	50	24	48.0	39
New Jersey	251	117	46.6	50	Central Illinois	49	23	47.0	45
Philadelphia	246	115	46.8	46	Great Plains	36	22	61.1	11
San Francisco	185	109	59.0	16	Panhandle	31	22	71.0	1
Boston	199	108	54.3	21	South Carolina	32	22	68.8	2
Western Pennsylvania	234	98	41.8	55	Sabine-Neches	36	20	55.6	19
Washington	131	80	61.0	12	Sacramento Valley	37	20	54.1	23
Gulf Coast	173	72	41.6	56	Central Indiana	42	19	45.2	49
Niagara Frontier	148	70	47.3	44	Chattanooga Area	35	19	54.2	22
Greater Detroit	99	67	67.6	3	Mohawk Valley	38	20	52.6	26
Central New York	108	64	59.2	14	New Mexico	37	20	54.0	24
St. Louis	131	66	50.4	34	West Virginia	46	19	41.3	57
Northern Ohio	127	65	51.1	31	North Florida	35	19	54.3	21
Milwaukee	103	60	58.2	17	Penn-Jersey	38	18	47.4	43
Connecticut Valley	98	59	60.2	13	Western Michigan	34	17	50.0	35
Tulsa	89	57	64.0	8	Worcester County	37	17	46.0	47
Georgia	83	53	63.8	10	Wichita	32	17	53.1	25
Northwest	104	51	49.0	38	Delaware County	59	16	27.1	59
Central Ohio	78	50	64.1	7	Lansing	32	14	43.7	51
Kansas City	107	46	43.0	52	Mobile	31	14	45.1	50
New Orleans	82	45	54.9	20	Utah	30	15	50.0	35
Quebec	102	37	36.3	58	Corpus Christi	24	13	54.1	23
Eastern New York	54	35	64.9	4	Memphis	25	13	52.0	28
McKinley	73	35	48.0	39	East Tennessee	25	12	48.0	39
Puget Sound	62	32	51.6	30	Middle Tennessee	28	12	42.9	53
Genesee Valley	75	32	42.6	54	Spokane	23	12	52.2	27
Ark-La-Tex	61	30	49.2	37	Southwest	136	9	6.6	60
Louisville	65	31	47.7	40	Total	6,116	3,084		
Oklahoma City	63	30	47.6	41					
South Texas	45	29	64.5	5					
Cincinnati	57	29	50.9	33					
Hawaii	60	30	50.0	35					
Arkansas	61	29	47.5	42					
Permian Basin	47	30	63.9	9					
Portland	59	27	45.7	48					
North Carolina	42	27	64.3	6					
Alabama	50	25	50.0	35					

555 Members-at-Large are omitted.

NOTE: Rhode Island, Colonial Virginia, Central Florida, South Florida and West Florida Chapters were not chartered at the time of this survey. Fifty-one replies show no chapter or state of residence.

\*Including Affiliate and Life Members.

#### NUMBER OF SAFETY ENGINEERS EMPLOYED

An effort was made to determine the ratio of safety engineers employed per 1,000 employes served. Considerable variation was found among the various industries. Differences existed also within an industry, complicating further the presentation of information on this topic.

Based on the 1,106 industry respondents who supplied information on this matter, the average ratio of safety engineers employed per 1,000 employees served is in the order of 1.45. This number should be used with caution, since it is too high for some industrial operations, and too low for others.

In general these data show that as the size of a company increases the ratio of safety engineers gradually decreases. This may reflect the greater effectiveness which accompanies accident prevention work in large companies where, generally speaking, management has a higher degree of awareness of the benefits of accident prevention. Perhaps also it results from the greater efficiency which is likely to occur when a larger staff permits specialization. There is also the benefit which accrues from the total experience of several persons and from better distribution of labor.

Figure 6—Respondents Having Safety Titles

TITLE	INDUSTRY	INSURANCE	GOVERNMENT	BUSINESS	TOTAL	
					No.	%
1. ENGINEER: Safety, Loss Prevention, Safety and Fire Protection, Loss Control	408	437	144	20	1,009	33.9
2. DIRECTOR: Safety, Accident Prevention	478	32	121	14	645	21.7
3. SUPERVISOR: Safety, Accident Prevention, Protection Engineering	351	123	46	7	527	17.7
4. MANAGER: Safety, Accident Prevention, Safety Services, Loss Prevention	103	72	8	10	193	6.5
5. INSPECTOR: Safety, Factory	46	15	71	2	134	4.5
6. SUPERINTENDENT: Safety, Accident Prevention	37	48	23		108	3.6
7. CONSULTANT OR COUNSELOR: Safety	31	23	15	37	106	3.5
8. REPRESENTATIVE: Safety, Accident Prevention, Loss Prevention	14	40	5	1	60	2.1
9. COORDINATOR: Safety	23	0	10	1	34	1.2
10. OFFICER: Safety, Protection, Security	6	0	25	2	33	1.2
11. SPECIALIST: Safety Program, Loss Prevention, Health and Safety, Punch Press	15	6	10	0	31	1.1
12. CHIEF (OR HEAD): Industrial Safety, Safety and Security	5	0	18	0	23	.8
13. TECHNICIAN OR INVESTIGATOR: Safety	1	0	15	0	16	.5
14. ADMINISTRATOR: Safety, Safety Program, Accident Prevention	10	0	4	0	14	.4
15. ADVISER, ANALYST, ASSISTANT INSTRUCTOR; ALL OTHERS: Safety, Protection	14		12	1	27	.9
16. DIRECTOR, SUPERVISOR, MANAGER: Industrial Hygiene	5		3	1	9	.4
TOTAL	1,547	796	530	96	2,969	100

#### TITLES OF RESPONDENTS

Figures 6 and 7 show that considerable variation exists in the titles of members. Twenty-one nouns (engineer, director, etc.) and fifteen noun modifiers (safety, accident prevention, etc.) were reported.

Respondents have been divided into two groups: (1) those with titles in which the word "safety" or equivalent appears; (2) non-safety titles. The "safety title" constitutes 84.5 per cent of the respondents and the titles of these respondents are listed in Figure 6.

Figure 6 shows that the one most common title is "engineer;" 34 per cent of the safety-titled respondents

bear this designation. The various modifiers used in connection with the noun "engineer" are shown in the figure. Note that while the "engineer" title is the most common one overall, it is, among industry respondents, second to the title "director." Among business respondents it is second to the title "consultant" or "counselor."

The first seven titles account for 91.4 per cent of all safety titles.

Figure 7 lists respondents whose titles do not carry the modifier "safety" or equivalent. Here, too, the title "engineer" leads the list. A large variety of modifiers are used, as shown in Figure 7. Note that about 80 per

cent of these engineer titles are held by respondents in the insurance field. Although these insurance employees do not have the "safety" modifier in their titles, it is a generally accepted fact that such persons actually are safety engineers. Accordingly, it would be logical to add these 69 titles to the total in Figure 6 of those who employ the title "engineer." If this is done, it develops that respondents who use the title "engineer," with or without the "safety" modifier, make up 35.4 per cent of all survey respondents.

The presence of titles with no apparent connection to safety is of interest. In the case of the 61 having a "personnel" title and the 50 having a "relations" title, it is

indicated that these respondents have a responsibility for the direction of the accident prevention program in their companies. This is a reasonable assumption, if we glance at Figure 8, where it can be seen that personnel and industrial relations executives commonly are responsible for accident prevention programs.

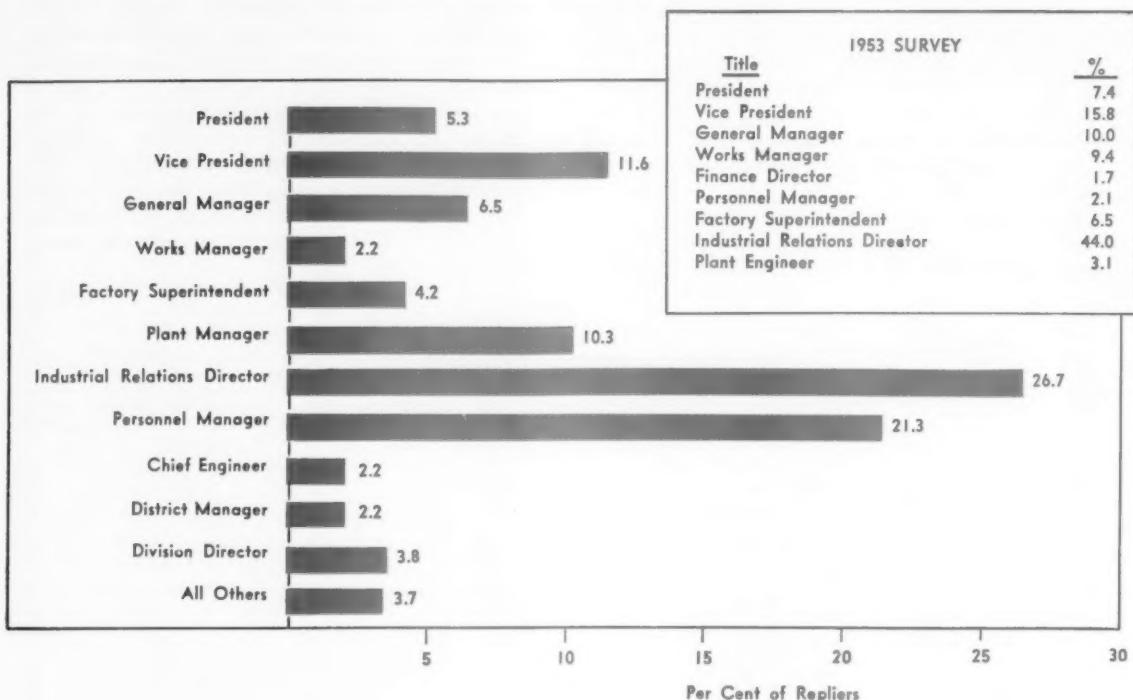
The same assumption probably can be made with regard to the other non-safety-titled respondents. Probably also, some have been promoted from safety-titled positions and retain either a responsibility for the accident prevention program or continue their interest in the Society, even though somewhat separated from direct work in accident prevention.

**Figure 7—Respondents Having Non-Safety Titles\***

TITLE	INDUSTRY	INSURANCE	GOVERNMENT	BUSINESS	TOTAL	
					No.	%
1. ENGINEER: Field, Insurance, Liability, Auditor, District, General, Officer, Research, Section, Supervising, Chief, Industrial, Plant, Maintenance	10	69	6	1	86	15.9
2. PERSONNEL: Manager, Director, Supervisor, Administrator, Coordinator	59	0	1	1	61	11.2
3. RELATIONS: Labor, Industrial, Employee, Personnel: Director, Vice President, Manager, Superintendent, Supervisor, Coordinator	48	1	0	1	50	9.1
4. MANAGER: Division, Director, District, Operations, Underwriting, District Engineering, Wage and Salary, Associate	18	17	0	9	44	8.2
5. SUPERVISOR: Insurance, Casualty, Employee Service, [no prefix]	14	9	4	0	27	4.9
6. PRESIDENT OR VICE PRESIDENT	7	5	0	10	22	4.1
7. ASSISTANT: Administrative, to Manager, to President, to Director of Insurance, to Superintendent, etc.	11	1	0	2	14	2.5
8. SUPERINTENDENT: General, Plant, Factory, Maintenance	7	1	1	0	9	1.6
9. PLANT PROTECTION: Manager, Supervisor, Director	7	0	0	0	7	1.2
10. DIRECTOR: Division, First-Aid	2	1	2	1	6	1.1
11. ALL OTHERS	26	59	28	29	142	26.3
12. NOT STATED	43	8	4	21	76	13.9
TOTAL	252	171	46	75	544	100

\*Titles not specifically identifying the bearer as engaged in safety work. Except for engineers in the insurance business, these respondents probably are not full time professional safety people but have some responsibility for safety.

Figure 8—Titles of Persons to Whom Respondents Report (Industry Only)



#### TITLES OF PERSONS TO WHOM RESPONDENTS REPORT

A comparison of Figure 8 with the equivalent chart in the 1953 survey (1951 data) shows considerable similarity. The 1953 survey showed that 44.0 per cent of the respondents reported to the industrial relations director. No reference was made to personnel manager and, consequently, it is assumed that his title was included in the "director" title. The present survey was able to separate these two titles. Together they constitute 48 per cent, remarkably close to the 1953 survey.

Since the 1953 survey covered only 418 respondents, it is probable that the present survey results, which cover a large sample and were completely unselected, are more representative findings.

Figure 8 should be viewed in connection with Figure 9, which shows that the respondent is more likely to report to the president, vice president, general manager, works manager or other top level management officer in companies having less than 1,000 employees. For example, of those who report to the president, 54 per cent are employed in companies having less than 1,000 employees. In the case of plant manager and works manager, this percentage is even higher: 62 per cent in the former case, 66 per cent in the latter.

This finding is of special interest since Figure 10 shows that the average frequency and severity rates are not as satisfactory as might be wished in the case where the respondent reports to the president, vice president,

etc. Thirty-five per cent of the industry repliers in Figure 9 are employed in companies having 1,000 or fewer employees.

#### ORGANIZATIONAL POSITION OF RESPONDENTS AND INJURY RATE

Figure 10 shows that a low injury rate is not guaranteed when the respondent reports to the president or vice president. However, this fact will be misleading unless it is reviewed in the light of the information in Figure 9, which shows that the respondent who reports to the president works predominantly in small companies. Since it is well known that frequency and severity rates often are higher in small companies, it can be inferred that the value of reporting to the top man is somewhat offset by unfavorable factors. For one, the top man has multiple duties and responsibilities and perhaps has not become as thoroughly convinced of the benefits of accident prevention as has his big-company counterpart.

A similar chart in the 1953 survey contains results which are almost diametrically opposed. The reason for this discrepancy can only be surmised. The 1953 survey does not indicate the size of the specific sample on which these particular results were based; however, it is probable that the difference is related to sample size.

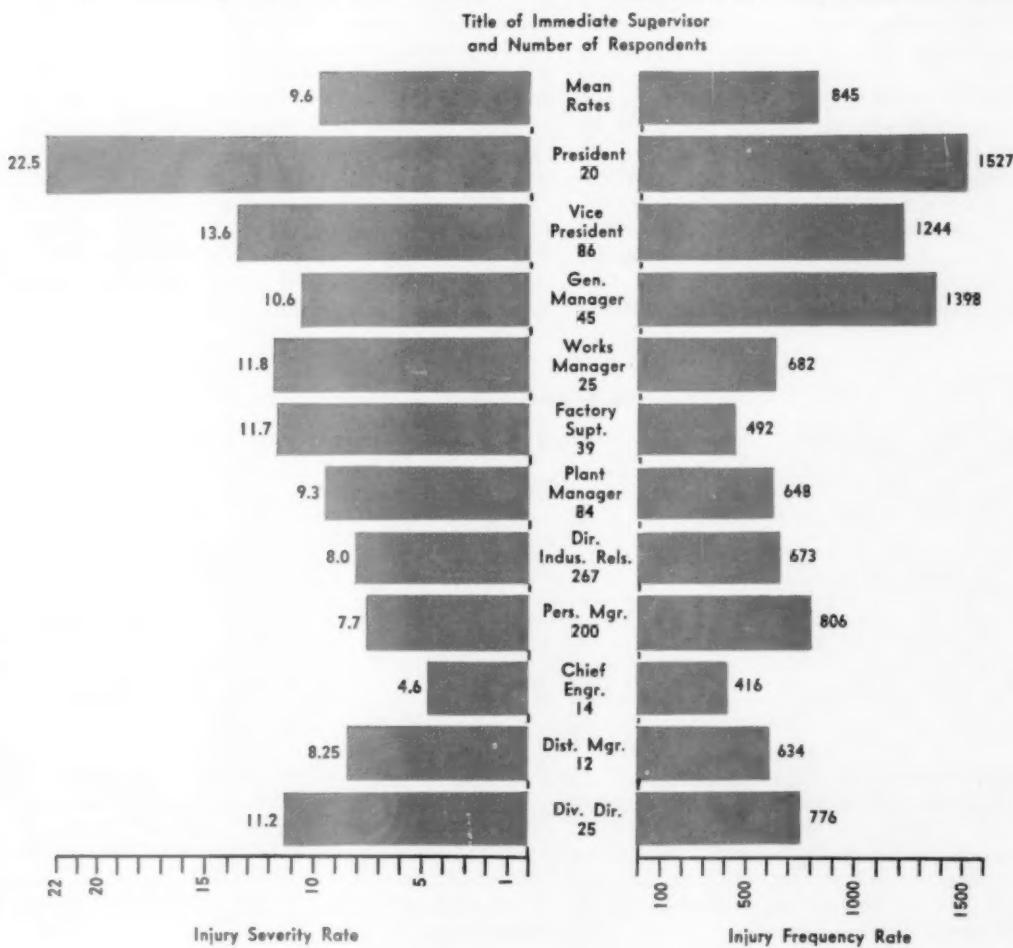
**Figure 9—Relation of Company Size to Reporting Title (Industry Respondents)\***

Reporting Title	Under 200	201-500	501-1,000	1,001-2,000	2,001-4,000	4,001-6,000	6,001-10,000	10,001-15,000	15,001-20,000	20,001-25,000	25,001-35,000	Over 35,000	Total	Not Stated
President	10	10	17	9	6	5	4	2	2	1	0	2	68	1
Vice Pres.	4	28	22	20	23	10	17	6	3	5	5	7	150	0
Gen. Mgr.	4	25	12	11	9	7	8	1	1	0	1	4	83	2
Works Mgr.	8	4	7	6	1	1	2	0	1	0	0	0	30	0
Fact. Supt.	11	13	10	11	5	3	1	0	1	0	0	0	55	2
Plant Mgr.	10	45	32	21	19	5	5	1	0	1	0	1	140	0
Ind. Rel. Dir.	1	28	44	80	81	33	39	20	9	8	10	7	360	4
Pers. Mgr.	3	22	37	69	69	30	17	16	3	3	4	8	281	3
Chief Engr.	1	4	2	3	5	1	2	2	3	1	0	1	25	4
Dist. Mgr.	3	10	6	5	0	1	0	0	1	1	1	0	28	1
Div. Dir.	2	14	9	4	5	2	6	1	1	1	1	1	47	2
All Others	2	6	3	5	6	2	4	2	6	2	1	5	44	0
<b>TOTAL</b>	<b>59</b>	<b>209</b>	<b>201</b>	<b>244</b>	<b>229</b>	<b>100</b>	<b>105</b>	<b>51</b>	<b>31</b>	<b>23</b>	<b>23</b>	<b>36</b>	<b>1,311</b>	<b>19</b>
<b>Not Stated**</b>	<b>10</b>	<b>35</b>	<b>25</b>	<b>29</b>	<b>21</b>	<b>13</b>	<b>14</b>	<b>9</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>9</b>	<b>176</b>	<b>32</b>

\*Title of executive to whom the respondent reports.

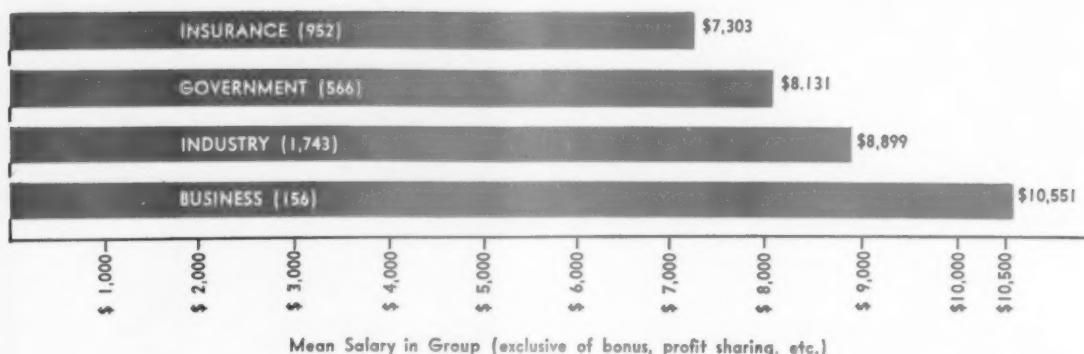
\*\*In addition, 271 respondents reporting to a safety title (Safety Director, etc.) are omitted.

**Figure 10—Organizational Position of Respondents and Injury Rate (Industry Group—Safety Titles Only)**



**Figure 11 — Mean Annual Salaries by Employer Group**

ALL TITLES, 3,417 REPLIES



#### MEAN ANNUAL SALARIES BY EMPLOYER GROUP

Figure 11 shows a considerable spread between the mean salary for insurance respondents and that for respondents in the business group. The amounts shown do not include bonuses, overtime payments or other benefits furnished in addition to salary. For example, in the case of many members in the insurance group, an automobile is furnished and its personal use is permitted, in some cases for a small charge well below the actual mileage cost.

Since replies were in the form of salary brackets rather than exact salaries, the exact midpoint or median salary cannot be given. A median salary bracket can be obtained, of course, but any such figure would be approximate only.

Since the survey information is dated July, 1958, the

figures shown in Figure 11 need to be adjusted upward in view of the steadily increasing level of wages and salaries. Reports of the Bureau of Labor Statistics, U.S. Department of Labor, show that, in the two years since the Society data was collected, the average weekly earnings of hourly-paid production workers in manufacturing industries has increased by 6.5 per cent. While comparable data is not available for professional and technical personnel in industry, it seems probable that salaries for these employees have gone up by a similar percentage.

Information is available on mean salaries paid in particular industries, broken down by company size. For lack of space, this and other information is not published in this report but may be obtained upon request to Society headquarters.

**Figure 12—Salaries by Membership Classification**

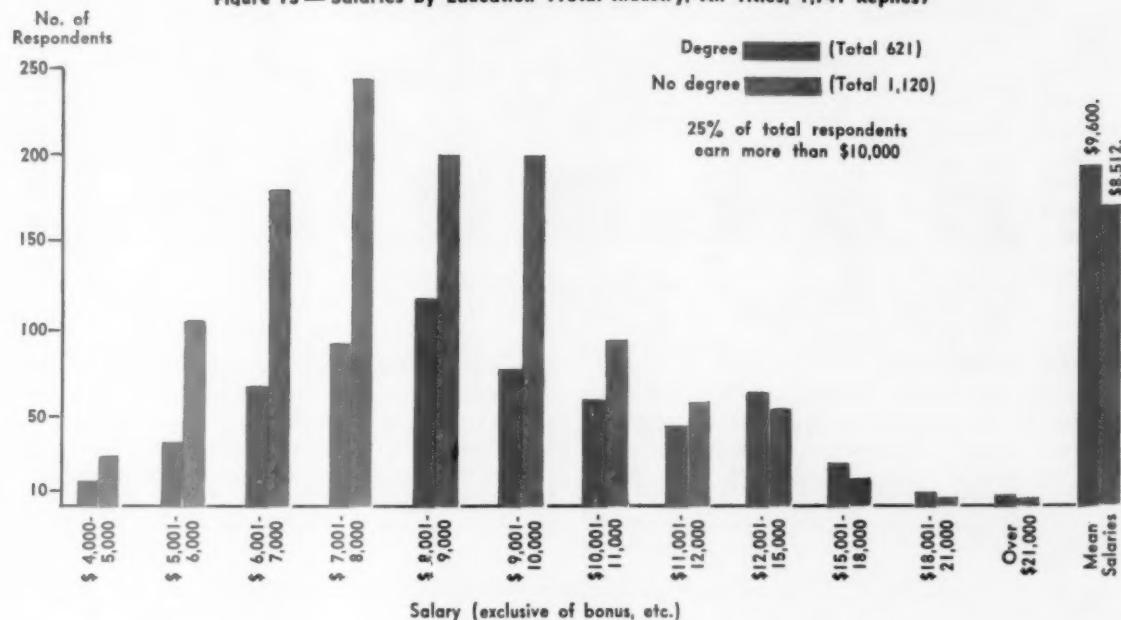
MEMBER CLASSIFICATION		\$4,000-\$5,000	\$5,001-\$6,000	\$6,001-\$7,000	\$7,001-\$8,000	\$8,001-\$9,000	\$9,001-\$10,000	\$10,001-\$11,000	\$11,001-\$12,000	\$12,001-\$15,000	\$15,001-\$18,000	\$18,001-\$21,000	Over \$21,000	Total No.	Mean Salary
Member	No. %	42 2.2%	149 7.8%	270 14.0%	352 18.3%	308 16.0%	266 13.8%	168 8.7%	138 7.2%	143 7.4%	48 2.5%	17 .9%	24 1.2%	1925 100%	\$9,071
Associate Member	No. %	49 5.3%	141 15.2%	213 23.0%	179 19.3%	143 15.4%	82 8.8%	48 5.1%	30 3.2%	28 3.0%	8 .8%	1 .01%	6 .7%	928 100%	\$7,782
Junior Member	No. %	55 10.8%	136 26.7%	119 23.3%	88 17.3%	64 12.5%	23 4.5%	10 2.0%	7 1.4%	4 .7%	3 .6%	1 .2%	0	510 100%	\$7,059
TOTAL		146	426	602	619	515	371	226	175	175	59	19	30	3363	

#### SALARIES BY MEMBERSHIP CLASSIFICATION

Figure 12 shows, as expected, that salaries are bigger for members in the higher membership classification. Condensing some of the data, it is learned that salaries above \$10,000 are earned by 27.9 per cent of Member respondents, 13.0 per cent of the Associate Members and 4.9 per cent of the Junior Members.

The 1953 survey showed that the mean salaries of Members, Associate Members and Junior Members in 1951 was, respectively, \$7,900, \$5,800 and \$5,150. As explained above, no median figures were obtained for the present survey. However, the mean salaries for these three groups are \$9,071, \$7,782 and \$7,059, respectively.

**Figure 13—Salaries by Education (Total Industry, All Titles, 1,741 Replies)**



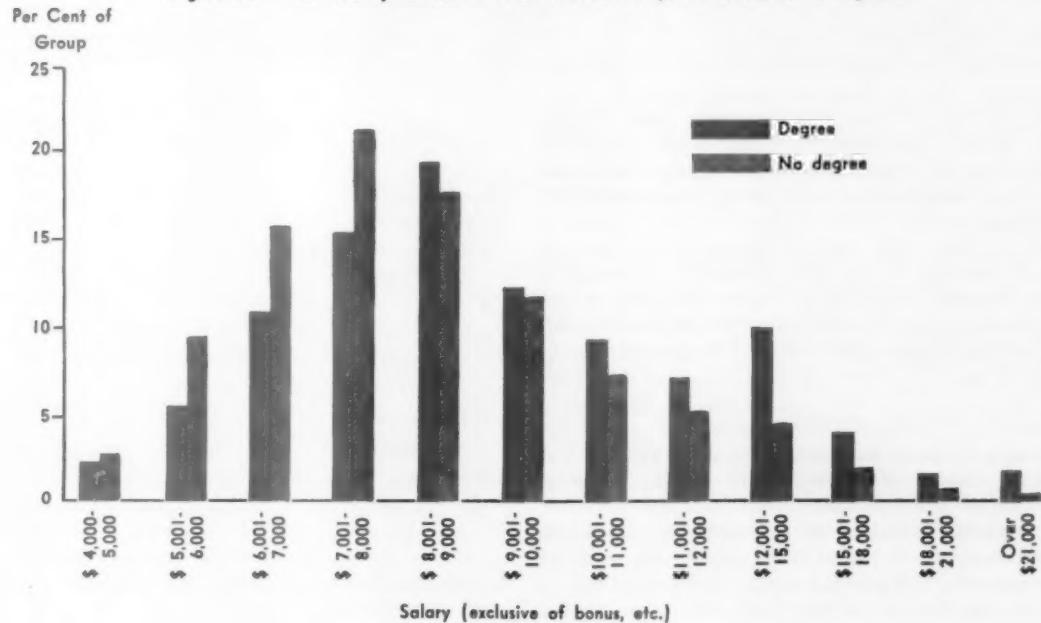
#### SALARIES BY EDUCATION

Figure 13 shows the number of industry respondents earning salaries within the brackets shown. Respondents are separated according to whether or not a degree is held. Slightly over one-third are degree-holders. For discussion of type of degree, see Figure 24. Note that the mean salary for degree-holders is \$1,112 higher.

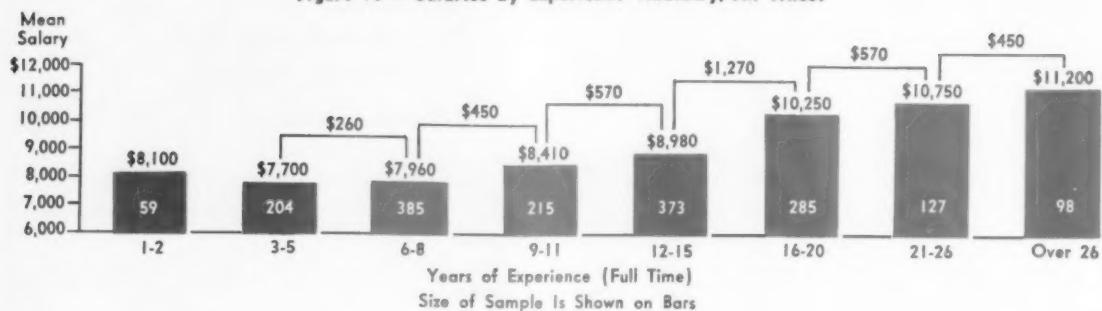
Lack of a degree, however, is no bar to reaching the

highest salaries. Nevertheless, as shown in Figure 14, the probability of obtaining the higher salaries is appreciably better for respondents having a degree. For example, Figure 14 shows that only 20.5 per cent of the non-degree respondents earned salaries above \$10,000, while 33.5 per cent of the degree-holders earned such salaries.

**Figure 14—Salaries by Education (Per Cent Industry, All Titles, 1,741 Replies)**



**Figure 15—Salaries by Experience (Industry, All Titles)**



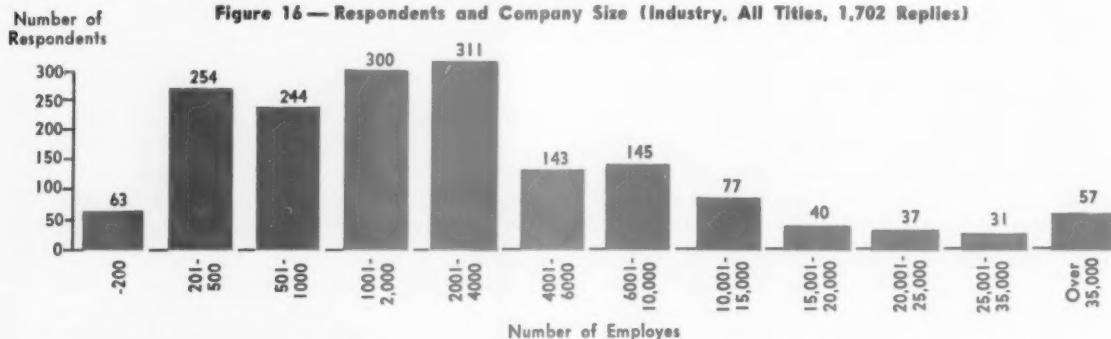
#### SALARIES BY EXPERIENCE

As anticipated, salary increases with experience. See Figure 15. The difference between adjoining experience brackets increases progressively with experience up to and including 20 years. Thereafter the mean salary increase diminishes in size.

Note that among respondents having one to two years'

experience, the mean salary was higher than those in the next two brackets. The reason is not known. One possibility is that some members have been transferred to safety positions only recently after holding jobs at high rates of pay. This opinion is substantiated by data showing that nine members with only one to two years' experience earn from \$10,000 to over \$21,000.

**Figure 16—Respondents and Company Size (Industry, All Titles, 1,702 Replies)**



#### RESPONDENTS AND COMPANY SIZE

Figure 16 shows that 33 per cent of the respondents in industry who answered this question work for companies having 1,000 or fewer employees. Sixty-nine per cent of the respondents work for companies having 4,000 or fewer employees. Only 14 per cent of the respondents work for companies having more than 10,000 employees.

Comparison with salaries reported shows that, in general, salaries increase with the number of employees. There are, of course, exceptions since factors other than size of company—for example, complexity and magnitude of the accident problem—may be the most significant factors.

#### SALARIES OF SUPERVISORS

Figure 17 shows that, for salaries in the \$7,001-8,000 bracket, those replying are fairly evenly divided as supervisors and non-supervisors. From this point on, the proportion receiving higher salaries increasingly are supervisors. At \$12,001-15,000 only 7.8 per cent are non-supervisors, while 92.2 per cent are supervisors. A reverse trend begins at this point. The reason for this

**Figure 17—Salaries, Supervisor vs. Non-Supervisor (Industry, All Titles, 1,242 Replies)**

Salary	No. and % of Total in Salary Bracket			
	Non-Supvr. (478)		Supvr. (764)	
	No.	%	No.	%
\$ 4,000- 5,000	16	66.7	8	33.3
\$ 5,001- 6,000	58	75.4	19	24.6
\$ 6,001- 7,000	82	55.0	67	45.0
\$ 7,001- 8,000	115	48.5	122	51.5
\$ 8,001- 9,000	86	35.0	159	65.0
\$ 9,001-10,000	49	28.5	117	71.5
\$10,001-11,000	31	27.0	84	73.0
\$11,001-12,000	15	13.7	69	86.3
\$12,001-15,000	16	7.8	76	92.2
\$15,001-18,000	4	12.5	28	87.5
\$18,001-21,000	3	27.3	8	72.7
Over \$21,000	3	30.0	7	70.0

odd change cannot be learned without more detailed study of the cases reporting.

**Figure 18—Number of Activities Engaged in by Respondents\***

Number of Respondents	Number of Activities in Addition to Accident Prevention							Accident Prevention Only	
	1	2	3	4	5	6	7+		
Industry	223	291	236	191	120	65	24	1,150	360
Business	10	10	7	5	2	2	0	36	53
Government	96	80	50	21	25	8	8	288	209
TOTAL	329	381	293	217	147	75	32	1,474	622

\*Safety titles only.

**Figure 19—Respondents\* and Time in Activities in Addition to Accident Prevention**

% of Time	No. in Government	No. in Business	No. in Industry	Total
1-10	91	4	218	313
11-20	70	10	208	288
21-30	40	9	162	211
31-40	15	3	150	168
41-50	26	8	167	201
51-60	11	0	82	93
61-70	3	0	36	39
71-80	4	0	33	37
81-90	7	2	26	35
91-99	21	0	68	89
TOTAL	288	36	1,150	1,474

\*Safety titles only.

**Figure 20—Respondents\* Engaged in One Other Activity Only**

% of Time	GOVERNMENT						BUSINESS						INDUSTRIAL						TOTAL					
	Fire	Security	Personnel	Insurance	Plant Publications	Medical	All Others	Fire	Security	Personnel	Insurance	Plant Publications	Medical	All Others	Fire	Security	Personnel	Insurance	Plant Publications	Medical	All Others	No.	%	
1-10	45		1	7	3	2		1							49	4	6	17	1	10		146	45.6	
11-20	14		2	3				3				1			26	2	3	11			2	67	21.1	
21-30	6			2				1	1						14		3	1	2	1		31	9.7	
31-40										1					8		2	2		1		14	4.3	
41-50	3		1	1				1							19	1	3	1	1	1		33	10.3	
51-60															2		3	2		2		9	2.8	
61-70	1														1					1		3	.9	
71-80																3	3						6	1.9
81-90																1							1	.4
91-99	2	1		1	1										3					1		9	2.8	
SUB TOTAL	71	1	4	14	4	2	0	6	1	0	2	0	1	0	122	7	24	37	5	18	0	319	100	
GROUP TOTAL				96						10										213				

#### ACTIVITIES OF RESPONDENTS

In view of the wide variety of titles of respondents, a study of activities is revealing. The information which follows was obtained in response to the following question in the survey questionnaire: *Check below the activities which you handle in addition to accident prevention, and approximate per cent of time spent on each:*

1. Fire prevention, fire protection, fire fighting.
2. Plant security supervision.
3. Personnel, labor relations.
4. Group insurance, compensation insurance.
5. Plant publication supervision.
6. Medical.
7. Other.

All of the data obtained on the matter of additional activity were confined to respondents having safety titles.

Figure 18 shows that 1,474 respondents engage in one or more activities in addition to accident prevention work. Only 622 perform accident prevention work exclusively.

Of the industry replies furnishing data on this subject, only 23.8 per cent are engaged exclusively in accident prevention work. On the other hand, 44 per cent of the government respondents do accident prevention work only.

Figure 19 shows that 80 per cent of the 1,474 devote half or less of their time to such additional activities.

In the business and government groups a higher percentage than in the industry group spend half or less of work time in additional activities.

For those respondents who have only one activity in addition to accident prevention, Figure 20 shows how much time is spent in each of the seven categories of additional activities. The "one other" activity referred to is listed. For approximately two-thirds of the respondents in this table, fire prevention is the only other activity in addition to accident prevention. For approximately one-half of all the respondents in this table, the additional activity consumes 10 per cent or less time.

Figure 21—Time in Two-or More Activities\* in Addition to Accident Prevention

% of Time	INDUSTRY							BUSINESS							GOVERNMENT							TOTAL					
	No. of Activities							Total	%	No. of Activities							Total	%	No. of Activities							No.	%
	2	3	4	5	6	7+	2			3	4	5	6	7+	2	3			4	5	6	7+					
1-10	76	28	12	4	1		121	13.0	3							3	11.5	23	8	4		1	36	18.7	160	13.9	
11-20	70	45	34	11	4		164	17.6	3	3						6	23.0	23	19	5	2	1	50	26.0	220	19.2	
21-30	43	44	27	19	3	5	141	15.2	2		2	1	2			7	26.9	12	6	2	10	1	1	32	16.6	180	15.8
31-40	33	43	31	18	11	1	137	14.7	1	1						2	7.6	6	4	2	3		15	7.8	154	13.4	
41-50	43	36	28	21	8	5	141	15.2	1	2	2	1				6	23.0	4	6	2	3	3	1	19	9.8	166	14.4
51-60	15	19	14	13	9	3	73	7.8										2	3	3	1	1	1	11	5.7	84	7.4
61-70	3	7	5	9	8	2	34	3.6											1			1	2		1.0	36	3.2
71-80	1	2	8	9	4	3	27	2.9										1	1		1	1	4	2.0	31	2.7	
81-90	3	4	9	2	5	2	25	2.6	1	1						2	7.6	2		1	4	2	9	4.6	36	3.2	
91-99	4	8	23	14	12	3	64	6.9										7	3	1	1	2		14	7.2	78	6.8
SUB TOTALS	291	236	191	120	65	24	927		10	7	5	2	2	0	26			80	50	21	25	8	8	192		1145	100%
GRAND TOTALS					927											26								192			

\*Kind of activity is not shown. Safety titles only.

#### TWO OR MORE ACTIVITIES

A similar tabulation was prepared for respondents engaged in two or more activities in addition to accident prevention. See Figure 21. Scrutiny of this table reveals an astonishingly large number of respondents

engaged in from two to seven additional activities consuming nearly 50 per cent of their time. A study of possible correlation between multiple activities and injury rates might be of interest.

Figure 22—Registration as Professional Engineers (by Employer Group)

	INDUSTRY	BUSINESS	GOVERNMENT	INSURANCE	TOTAL
Number Registered	93	12	47	82	234
Per Cent of Employer Group Registered	5.1%	7.0%	8.1%	8.5%	6.6%
Total in Group	1800	170	576	967	3513

#### REGISTRATION AS PROFESSIONAL ENGINEERS

Figure 22 shows the distribution of respondents who are registered as professional engineers, according to their employer group.

Registered respondents in the insurance group exceed

those in all other groups in terms of per cent of employer group.

Registered as professional engineers are 6.6 per cent of all respondents. Affiliates and Life Members are excepted in this as in all other tables.

Figure 23 lists the states in which respondents are registered as professional engineers.

At the time this information was supplied by respondents, two states—Georgia and Connecticut—provided

for registration of safety engineers. In other states, their registration was required as industrial engineer, etc. A third state—Massachusetts—has since adopted legislation permitting registration of safety engineers as such.

Figure 23—State of Registration of Professional Engineers (All Respondents)			
1. Arkansas	2	20. Montana	1
2. California	26	21. Nebraska	1
3. Colorado	9	22. New Hampshire	1
4. Connecticut	9	23. New Jersey	10
5. Delaware	2	24. New Mexico	7
6. District of Columbia	6	25. New York	15
7. Florida	4	26. North Carolina	3
8. Georgia	6	27. Ohio	10
9. Illinois	17	28. Oklahoma	1
10. Indiana	3	29. Oregon	2
11. Iowa	2	30. Pennsylvania	18
12. Kansas	3	31. Tennessee	2
13. Kentucky	3	32. Texas	22
14. Louisiana	5	33. Vermont	1
15. Massachusetts	4	34. Washington	5
16. Michigan	2	35. West Virginia	2
17. Minnesota	2	36. Wisconsin	6
18. Mississippi	1	Not stated, etc.	14
19. Missouri	7		234

Figure 24—Types of Degrees by Employer Group (All Titles)

EMPLOYER GROUP	ENGINEERING		PHYSICAL SCIENCES		OTHER SCIENCES		OTHER		TOTAL	
	Advanced	Bachelor	Advanced	Bachelor	Advanced	Bachelor	Advanced	Bachelor	Advanced	Bachelor
Industry	23	300	9	69		43	22	194	54	606
Insurance	9	287	2	27		8	10	102	21	424
Government	12	106	1	25		3	4	48	17	182
Business	9	31	2	10	1	1	6	30	18	72
TOTAL	53	724	14	131	1	55	42	374	110	1284

NOTES—In a total of 47 different degree designations, 20 were in the engineering fields.

PHYSICAL SCIENCES—Chemistry, Physics, Mathematics, Geology

OTHER SCIENCES—Biology, Psychology, Agriculture

OTHER—All other degrees, principally Business and Personnel Administration, Economics, Education, Management and Law

The total number having degrees obviously cannot be obtained by totaling bachelor and advanced degrees. For the industry group, 621 of the 1,741 respondents who answered this question held a total of 660 degrees.

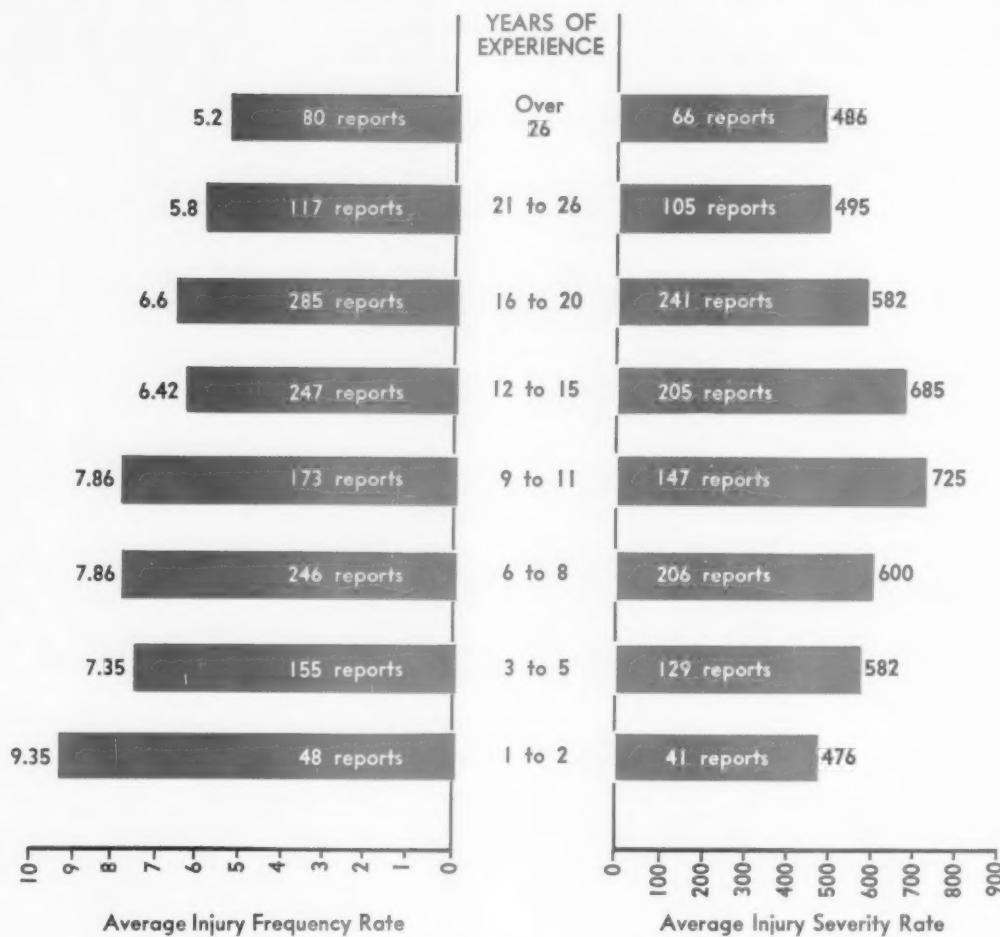
#### DEGREES HELD BY RESPONDENTS

Figure 24 shows the number of bachelor and advanced degrees held by all respondents, classified in four broad categories. Degrees in 49 fields are shown; 724 hold bachelor degrees in the engineering field and constitute 56 per cent of all those holding bachelor degrees.

Of the industry group, 36 per cent hold one or more degrees.

Sixty-one per cent of the degrees held by industry members are in the engineering-scientific field. The remainder are in the fields of business administration, education, psychology, etc.

Figure 25 — Experience and Injury Rate



Combined industry, government and business groups. The number of reports does not agree because all respondents did not give both frequency and severity.

#### EXPERIENCE OF RESPONDENTS AND INJURY RATES

Figure 25 may be compared with the Chart 12 of the 1953 survey. In both surveys it appears that a definite relationship exists between years of experience and the injury rates. For example, in the present survey, Figure 25 shows that the average frequency rate for the 80 respondents who claimed over 26 years' experience was slightly less than half of the frequency rate of those having only one to two years' experience. The frequency rates shown in this table are strikingly similar to those shown in the 1953 survey.

In the present survey equally good correlation was not found between the severity rate and experience. This is not surprising, since the chance factor plays a large part in the severity of injuries.

#### OTHER DATA

Considerable other data were developed by the survey, much of it of only local interest. Space does not permit publication of all data in this issue of the *Journal*. Members with questions not answered above are requested to send inquiries to the Society's managing director. Whenever the information is available and the question is of substantial interest, an attempt will be made to publish the answer in future issues.

It is intended to conduct a similar survey at least every five years. Suggestions for improving the survey questionnaire and other constructive criticisms are welcome.

# SURVEY OF PRESENT STATUS OF MEMBERS OF THE AMERICAN SOCIETY OF SAFETY ENGINEERS

All members are asked to complete and return this form promptly to National Headquarters.

## 1. MEMBERSHIP IN THE SOCIETY.

- a. Present classification: (Check one of the brackets below.)  
 Member       Affiliate Member  
 Associate Member       Life Member  
 Junior Member
- b. Member of what chapter(s): \_\_\_\_\_
- c. If not a member of a chapter, indicate state of residence: \_\_\_\_\_

## 2. BUSINESS, INDUSTRY OR GOVERNMENT AFFILIATION.

- a. I am connected with the following industry:  
 Aircraft Manufacturing, Petroleum, Telephone, etc.
- b. I am connected with the following business:  
 Casualty Insurance, Safety Equipment, Safety Consultant, etc.
- c. I am connected with the following governmental group:  
(Check one.)  
 Army       Other Federal Group  
 Navy       State Governmental Group  
 Air Force       Municipal Governmental Group
- d. My responsibility is exercised in: (Check one.)  
 A single plant, single location or single service group  
 A number of plants in a single city, several cities or multi-service groups
- e. The total number of employees in "d" above who are served by my safety work:  

Under 200	2001-4000	15,001-20,000
201-500	4001-6000	20,001-25,000
601-1000	6001-10,000	25,001-35,000
1001-2000	10,001-15,000	Over 35,000

## 3. MY JOB TITLE IS.

- (Check one.)
- |  |   |
|--|---|
| <input type="checkbox"/> Superintendent of Safety or Accident Prevention | <input type="checkbox"/> Asst. Superintendent   |
| <input type="checkbox"/> Manager of Safety or Accident Prevention        | <input type="checkbox"/> Asst. Manager          |
| <input type="checkbox"/> Director of Safety or Accident Prevention       | <input type="checkbox"/> Asst. Director         |
| <input type="checkbox"/> Supervisor of Safety or Accident Prevention     | <input type="checkbox"/> Asst. Supervisor       |
| <input type="checkbox"/> Safety Engineer                                 | <input type="checkbox"/> Asst. Safety Engineer  |
| <input type="checkbox"/> Safety Inspector                                | <input type="checkbox"/> Asst. Safety Inspector |
| <input type="checkbox"/> Safety Counselor or Consultant                  | <input type="checkbox"/> Asst. Safety Counselor |
| <input type="checkbox"/> Other   | <input type="checkbox"/> Asst.                  |

## 4. MY POSITION IN OUR ORGANIZATION.

Titles of those above me in chain of command. (Omit this question if you are a safety engineer for an Insurance Company, Department of Labor, Safety Council or similar organization.)

EXAMPLE President	FOR CALENDAR YEAR 1957	CUMULATIVE RATE FOR LAST 5 YEARS
1. _____	4000-5000	7001-8000
2. _____	5001-6000	8001-9000
3. _____	6001-7000	9001-10,000
4. _____	11,001-12,000	12,001-15,000
5. _____	15,001-18,000	Over 21,000
6. _____		

## 5. FUNCTIONS AND DUTIES.

- a. Number of full time safety employees whom I supervise directly—  
(1) Safety Engineers and Safety Inspectors:  
(2) Secretarial and clerical, etc.: \_\_\_\_\_
- b. Number of full time safety employees to whom I give technical advice, but who report directly to a line supervisor: \_\_\_\_\_
- c. Activities which I handle in addition to accident prevention, and approximate per cent of my time spent on each: (Check brackets and fill in percentage for as many items as apply to you.)
- |   |   |
|---|---|
| Fire prevention, fire protection, fire fighting | % |
| Plant security supervision                      | % |
| Personnel, labor relations                      | % |
| Group insurance, compensation insurance         | % |
| Plant publication supervision                   | % |
| Medical   | % |
| Other   | % |

## 6. EXPERIENCE AND PROFESSIONAL STATUS.

- a. Age: (Check one.)  
 20-25     31-35     41-45     51-55     61-65  
 26-30     36-40     46-60     56-60     66 and over

- b. Years engaged in safety work full time: (Check one.)  
 1-2 years     6-9 years     12-15 years     21-26 years  
 3-5 years     9-11 years     16-20 years     Over 26 years
- c. Years engaged in safety work part time: (Check one.)  
 1-2 years     6-9 years     12-15 years     21-26 years  
 3-5 years     9-11 years     16-20 years     Over 26 years
- d. Years engaged in supervising other safety engineers: (Check one.)  
 1-2 years     6-9 years     12-15 years     21-26 years  
 3-5 years     9-11 years     16-20 years     Over 26 years
- e. If you are a registered Professional Engineer, give principal state you are registered in: \_\_\_\_\_
- f. Membership in other engineering or professional societies: (Check brackets for as many items as apply to you.)
- |                                |                               |                               |
|--------------------------------|-------------------------------|-------------------------------|
| <input type="checkbox"/> ASCE  | <input type="checkbox"/> AIEE | <input type="checkbox"/> SAME |
| <input type="checkbox"/> AIMME | <input type="checkbox"/> NSPE | <input type="checkbox"/> AAAS |
| <input type="checkbox"/> ASME  | <input type="checkbox"/> ASTD | <input type="checkbox"/> ISTE |
| <input type="checkbox"/> Other |                               |                               |

## 7. EDUCATIONAL BACKGROUND.

- a. Number of years completed in—  
Elementary school: \_\_\_\_\_ College: \_\_\_\_\_  
High school: \_\_\_\_\_ Graduate school: \_\_\_\_\_
- b. Indicate degrees received: \_\_\_\_\_
- c. Major field: \_\_\_\_\_
- d. Semester (or quarter) hours undergraduate credit earned after bachelor's degree: \_\_\_\_\_
- e. Semester (or quarter) hours of graduate credit earned toward advanced degrees: \_\_\_\_\_
- f. Classroom hours of noncredit courses (Institutes, etc.): \_\_\_\_\_

## 8. ANNUAL SALARY.

Annual salary exclusive of bonuses, reimbursed expenses, etc.: (Check one.)

<input type="checkbox"/> 4000-5000	<input type="checkbox"/> 7001-8000	<input type="checkbox"/> 18,001-20,000	<input type="checkbox"/> 15,001-18,000
<input type="checkbox"/> 5001-6000	<input type="checkbox"/> 8001-9000	<input type="checkbox"/> 11,001-12,000	<input type="checkbox"/> 18,001-21,000
<input type="checkbox"/> 6001-7000	<input type="checkbox"/> 9001-10,000	<input type="checkbox"/> 12,001-15,000	<input type="checkbox"/> Over 21,000

## 9. MY COMPANY'S DISABLING INJURY EXPERIENCE.

Disabling injury experience computed according to ASA Standard Z16.1-1954. (Omit this question if you are a safety engineer for an Insurance Company, Department of Labor, Safety Council or similar organization.)

FOR CALENDAR YEAR 1957	CUMULATIVE RATE FOR LAST 5 YEARS
a. Disabling Injury frequency rate:	_____
b. Disabling Injury severity rate:	_____
c. Average days lost per disabling injury:	_____

## 10. MY COMPANY'S MOTOR VEHICLE ACCIDENT EXPERIENCE.

(Omit this question if you are a safety engineer for an Insurance Company, Department of Labor, Safety Council or similar organization.)

FOR CALENDAR YEAR 1957	CUMULATIVE RATE FOR LAST 5 YEARS
b. Motor vehicle accident frequency rate: (NSC Fleet Safety Contest Rules)	_____
c. Number of vehicles:	_____

## 11. ACTIVITY IN THE AMERICAN SOCIETY OF SAFETY ENGINEERS.

I am serving or have served as: (Check as many items as apply to you.)

<input type="checkbox"/> National officer	<input type="checkbox"/> Member of a national committee
<input type="checkbox"/> Chapter officer	<input type="checkbox"/> Member of a chapter committee

## 12. ACTIVITY IN OTHER SAFETY GROUPS.

I am serving or have served in: (Check as many items as apply to you.)

<input type="checkbox"/> National Safety Council	<input type="checkbox"/> Local safety organization
<input type="checkbox"/> Veterans of Safety	<input type="checkbox"/> Federal Safety Council work
<input type="checkbox"/> Regional safety organization	<input type="checkbox"/> Other safety groups (specify)
<input type="checkbox"/> Statewide safety organization	

# **AMERICAN SOCIETY OF SAFETY ENGINEERS**

## ***Membership Information***

**T**HE American Society of Safety Engineers has established the following classifications of active membership.

**ASSOCIATE MEMBER**—To be eligible as Associate Member an applicant shall be at least twenty (20) years of age and

a. Shall have a degree in engineering from a college or university whose curriculum is accredited by the Engineers' Council for Professional Development or shall have legal registration as a professional engineer and, in addition, shall be engaged in safety engineering with at least one (1) year's experience, no time being credited to this one (1) year unless at least fifty (50) per cent of the time was devoted to safety engineering, or shall have supervision over the safety engineering function of his organization; or

b. Shall have a college degree other than that specified in "a" above and, in addition, shall be engaged in safety engineering with at least three (3) years' experience, no time being credited to this three (3) years unless at least fifty (50) per cent of the time each year was devoted to safety engineering; or

c. In lieu of a college degree, shall be engaged in safety engineering with at least five (5) years' experience, no time being credited to this five (5) years unless at least fifty (50) per cent of the time each year was devoted to safety engineering.

**MEMBER**—To be eligible as a Member an applicant shall be at least thirty (30) years of age, shall have the qualifications required for Associate Membership and also shall have (5) years' experience in addition to that required by and of a type defined in the subsection of the requirements for Associate Member which is applicable to him.

**FELLOW**—To be eligible as a Fellow, a Member shall be nominated upon the unsolicited recommendation of three (3) other Members, shall be at least forty (40) years of age, shall have been a Member for at least thirteen (13) years, and shall have been engaged in safety engineering for at least twenty (20) years, during at least five (5) years of which he shall have been in responsible charge of the safety engineering function of his organization. In addition, he shall have made an outstanding contribution to the safety engineering profession. Recommendations of candidates for the Fellow classification, along with substantiating data, shall be sent to the Secretary of the Society, who shall submit such recommendations and substantiating data to the Committee on Membership. The Committee on Membership shall report its findings to the Executive Committee for action. Fellows shall be elected by a majority vote of the Executive Committee.

**AFFILIATE MEMBER**—To be eligible as an Affiliate Member an applicant

a. Shall be at least twenty (20) years of age and shall be engaged in safety engineering with at least one (1) year's experience, no time being credited to this one (1) year unless at least fifty (50) per cent of the time was devoted to safety engineering; he may remain in this classification while qualifying for Associate Member or Member Classification; or

b. Not being engaged in safety engineering, shall be at least twenty-five (25) years of age and shall have pursuits, attainments in accident prevention, or practical experience, extending over a period of at least three (3) years, which shall qualify him to cooperate with members of the Society and to render service to the Society.

*for additional information write to*

The American Society of Safety Engineers

5 North Wabash Avenue, Suite 1705

Chicago 2, Illinois

(or contact your local chapter)

KEEPING

# POSTED!



Watch this space each month for late news on NSC services. Use the handy Order Form to request sample copies of publications listed in this issue or to order safety merchandise.

AUGUST  
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## BRING YOUR COMPANY NURSE INTO YOUR SAFETY PROGRAM

Enroll her in the National Safety Council  
Occupational Health Nursing Service

Business and industrial firms are rapidly finding a greater place in their safety programs for the company nurse. The nurse, because of her concern for employees' well being, can play a vital role in the accident prevention program. She can provide important assistance to the personnel and safety departments in the placement of workers in their jobs, their physical limitations, the hazards present in work environments and in accident investigation. She is often confided in by workers who may reveal feelings of physical illness or mental depression to her. Properly oriented, the company nurse can help spot potential accident causes and contribute greatly to the accident prevention program.

### WHAT IS IT?

The Occupational Health Nursing Service consists of a selection of publications designed to keep nurses fully informed about safety. With this service, the nurse is enrolled in the Occupational Health Nursing Section of the Council. The section serves as a market place for the exchange of ideas and experiences which have proved helpful in promoting safety. The section also produces and distributes a monthly newsletter, publications and technical releases, plans Congress programs and engages in other activities aimed at keeping the industrial nurse aware of the latest developments in the field of safety.

### WHAT SERVICES ARE PROVIDED?

Materials provided with the Occupational Health Nursing Service include:

#### Monthly

Subscription to NATIONAL  
SAFETY NEWS (12 issues)

Subscription to Section  
Newsletter (12 issues)

Special Technical Releases

#### Annually

Accident Facts  
Accident Rates  
Congress Transactions  
(four volumes)  
National Safety Calendar

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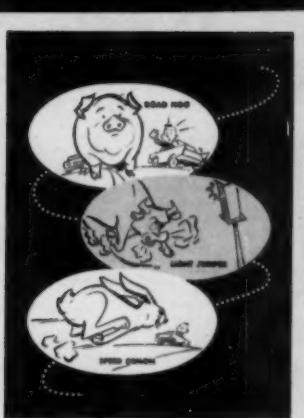
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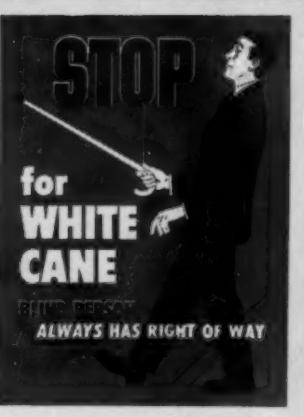
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## NATIONAL SAFETY COUNCIL

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## Practical Grounding

From page 21

experienced a few jolting shocks on ac.-dc. sets, he uses an isolation transformer to feed power to the set he is repairing. He avoids having metal of any kind around his work area.

If he has questions on insulation resistance, he takes measurements before he energizes the circuit. He insulates all tool handles which must be held in the hand. All of these factors can be applied to the industrial scene.

Unfortunately, assuring personnel safety cannot be accomplished on a blanket basis. Each situation must be analyzed by someone who understands all the problems and who is willing and able to give some real thought and planning to them in light of the specific situation.

There is a tendency to over-generalize in thinking that what is good for one situation is good for another. This is not the best approach.

In any specific situation concerning grounding of electrical equipment, the attack must be based on the existing or required environment. These questions must be answered before the best arrangement can be determined:

1. Can all contact with grounded metal or conductors or wet ground be eliminated? If the answer is "yes," then the most effective approach, as illustrated by the TV repairman, can be taken.

2. If grounded metal panels, pipes, conduit cannot be eliminated, another approach is required. Proper insulation checks on tools, plus deliberate grounding of adjacent steel panels, should be accomplished. However, the approach taken by the TV repairman provides higher factors of safety.

A great deal of thought should be given to planning future environments, such as lab areas, work benches, test bays, and setups, for experimental work to provide as

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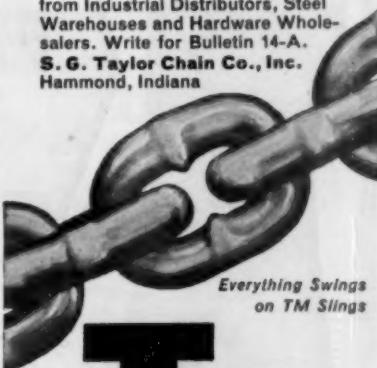
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many additional safety factors as possible.

In some European countries the mid-point of a supply voltage is grounded, rather than one leg. This means that in a 110-volt source, the highest voltage above ground would be 55 volts. Because the service grounds in our factories cannot be changed, this thinking can be applied only to special setups and equipment designs.

The U. S. Navy has been meticulous in seeing that none of their shipboard conductors is grounded. The same effect can be achieved in industry to provide an additional safety factor in special cases by use of an isolation transformer.

### Problems in Grounding

1. In electronic labs, should oscilloscope cases be grounded by 3-wire plugs?

Grounding oscilloscope cases with 3-wire plugs has, in many instances, done more harm than good. Such an arrangement forces the technician to use the 60-cycle ground as a reference point in measurements he may be making. Frequently he finds there is as much as 25 mv of noise on the 60-cycle ground. If he is trying to take measurements in the order of 5 mv, he is licked before he starts. So he removes the ground pin from the 3-prong safety plugs, or uses an adaptor which accomplishes the same purpose.

In such instances, a good approach is to instruct him to use, as a safety ground, that ground present in the circuit being measured. Labs equipped with a "quiet" ground (N. B.)<sup>2</sup> can, with little trouble, use the quiet ground as the equipment case ground, as long as periodic checks are made to insure that the quiet ground is properly maintained. In cases where measurements are being taken with both "scope" leads above ground, a differential amplifier can effectively be used. Manufacturers of oscilloscopes do not recommend that such instruments be used without proper ground connections.

Take a walk around your own lab and make a count of the number of scopes being used with the cases "floating." It is not uncom-

<sup>2</sup>A quiet laboratory ground is a separate shielded conductor run independently from power ground to provide a zero potential connection free from pickup or induced voltages.

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mon to find B+ measurements of 300 to 400 volts being made under these circumstances. All the technician has to do to have a lethal voltage with respect to ground *on the case* of the scope is to reverse his leads inadvertently. One technician made the comment he would only reverse his leads by accident. (That's the only way we injure people—by accident.)

2. Many people are killed every year using electric hand drills. How can these accidents be prevented?

In industry, equipment is available today for a "quick check" of appliances. Insulation resistance under realistic voltages can be easily determined in a few seconds. Every electric drill and similar portable appliance should be given this quick check before it is issued from the crib.

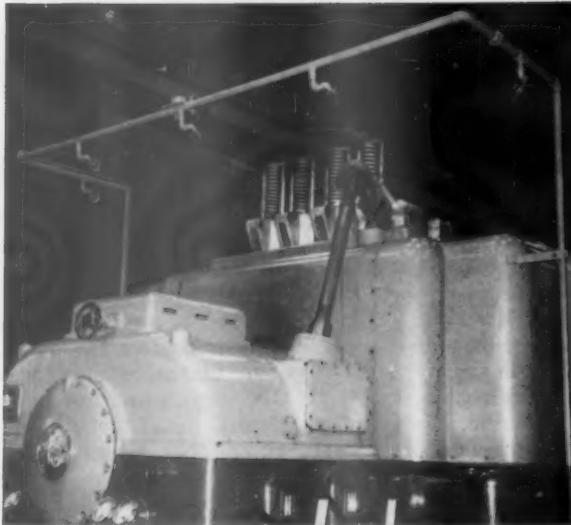
Figure 4 shows a portable electric drill being checked for insulation resistance. Exposed metal cases should be grounded through approved 3-prong plugs. Ground conductor resistance should be checked. Periodic visual inspections of cords, plugs, and similar items should be made by qualified maintenance personnel. Any required repairs should be made by qualified personnel. A card record should be kept for each piece of equipment giving a running record of its age, inspections, repairs.

In cases where electric drills must be used in wet locations (basements, out-of-doors in rain, or equivalent environments), it's recommended that low-voltage (6 to 12 volts) appliances be used. In some instances, air powered drills can be employed. The same philosophy applies to extension lights and other electrical appliances.

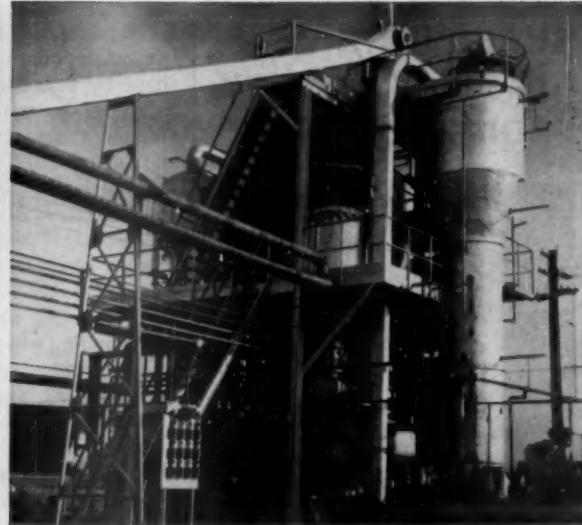
The first line of defense against lethal shock is proper insulation resistance. Avoid working close to grounded frames and metal if possible. If this is impossible, the next best approach is to see that such exposed metal is properly grounded. Plastic bodies on electric drills would help to provide additional safety.

3. Should 3-wire (grounding) plugs be installed on soldering irons?

I know of no cases of lethal shock from a soldering iron in a dry environment. The handle is insulated, and the area of possible contact with a hot iron is generally small.



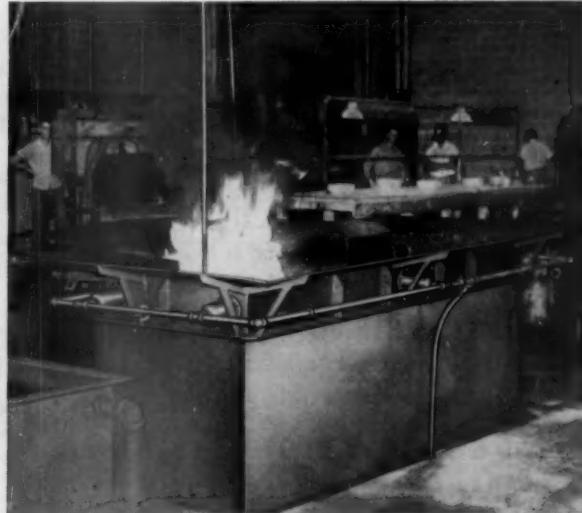
At Pennsylvania Power and Light Company, Sunbury, Pa., this steam generator is protected by an automatic Grinnell Protecto-Spray system in the event of outside fires and by a Dry Chemical system inside the casing.



At Canadian Vegetable Oil Processing Ltd., Hamilton, Ontario, Grinnell ProtectoSpray safeguards upper structure of this hexane solvent extraction unit, while a ProtectoFoam system guards the lower section.



At the RCAF supply depot at Namao, Alberta, this infrared drying oven is protected by a Dry Chemical system engineered by Grinnell to protect against possible fire resulting from ignition of flammable vapor mixtures.



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Emphasis should be placed on keeping all appliance cords in good shape by periodic visual inspection, plus periodic tests for electrical insulation resistance. Soldering irons should meet UL requirements.

4. Should small electric erasing machines held in a draftman's hand be grounded? Short circuits in these motors generally do not blow the circuit breaker or fuse because the flexible cord is tinsel wire.

Grounding will not solve the problem of an internal short in this type of equipment. The erasing machines should be supplied with a line cord large enough to blow the fuse or circuit breaker in case of a fault. Only UL-approved appliances should be purchased, particularly where the metal unit is held in the operator's hand. It would again be advisable to make such cases of insulating material.

**Conclusions.** To ensure personnel safety when using electrical equipment, permanently installed electrical equipment, such as drill presses, machine tools, should be periodically checked to see that the

frame is properly grounded to meet NEC requirements. These tests should also check polarity of wiring, insulation resistance, ground conductor resistance, plus a visual inspection of electrical switches and control boxes.

A recent industrial fire was caused by improper assembly of an electronic distribution and circuit breaker panel, which reduced the spacing between live copper parts to a dangerous degree. The design was good, but installation was faulty. Thorough visual inspection of all electrical installations and rearrangements should be mandatory.

Continual vigilance must be exerted to maintain proper insulation resistance, which is the first line of defense. Portable appliances with plastic bodies would provide an added safety factor in case of a fault. Low voltage or air driven appliances should be used in wet locations. Isolation transformers are helpful in some specific conditions. The total environment must be considered in each case to determine the safest way to approach a specific problem.

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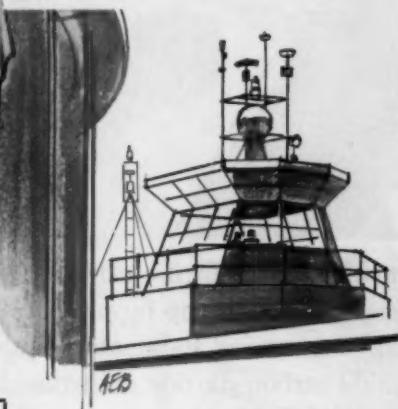
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### —From page 31

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## Army, AEC Win President's Awards



Under Secretary of Labor James T. O'Connell presents awards to Secretary of the Army Wilber M. Brucker and John S. Graham, member of the U. S. Atomic Energy Commission.

The Department of the Army and the Atomic Energy Commission were the 1959 winners of the President's Safety Award. These awards are conferred annually on the two federal agencies—one employing more than 50,000 employees, the other employing less—which achieve the most outstanding safety records for their civilian employees.

The award ceremony, sponsored by the Federal Safety Council, was held June 23 in the Departmental Auditorium in Washington. Presentation of the awards was made by Under Secretary of Labor James T. O'Connell and were accepted by Secretary of the Army Wilber M. Brucker and John S. Graham, member of the AEC.

The awards, established by President Eisenhower in 1954, are based on safety performance standards formulated by the Federal

Safety Council. Winners are selected by a panel of judges chosen from outside the government.

In addition to the winners, honorable mention was won by the Air Force, Interior, Government Printing Office, General Services Administration, Justice, Labor, Railroad Retirement Board, Treasury, and Veterans' Administration.

In the above photograph, left to right, are: Arthur W. Motley, chairman, Federal Safety Council; Eugene J. Lyons, special assistant to the President for Personnel Management; Thomas H. Wilkenson, safety director, Department of the Army; Lt. Gen. James Collins, Assistant Chief of Staff for Personnel; Wilber M. Brucker, Secretary of the Army; John S. Graham, member, AEC; James T. O'Connell, Under Secretary of Labor; D. F. Hayes, chief, Safety and Fire Protection, AEC.

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International Harvester Co., Manufacturing Research.

Kentucky Utilities Co., System Power Stations.

Lehigh Portland Cement Co., Alsen, N. Y.

Liberty Powder Defense Corp., Wabash River Ord. Works, Newport, Ind.

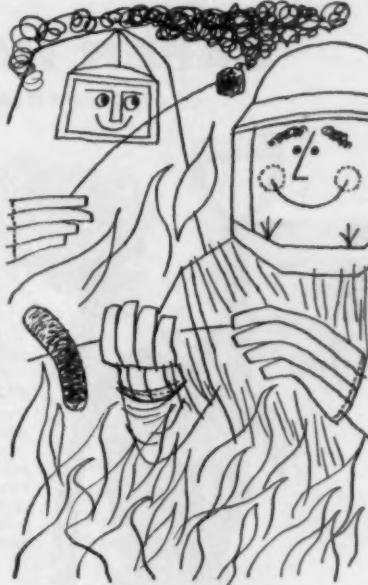
Mallinckrodt Chemical Works, Weldon Spring, Mo.

Marquette Cement Mfg. Co., Cape Girardeau, Mo.

Medusa Portland Cement Co., York, Pa.

Michigan Consolidated Gas Co., Detroit District.

Missouri State Highway Commission, (2): District 3, Hannibal, Mo.; District 1, St. Joseph, Mo.



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National Biscuit Co., (2): Holland, Mich.; Houston, Tex., Cracker.

National Broadcasting Co., WRCV WRCV-TV, Philadelphia, Pa.

North American Aviation Inc. (2): Los Angeles Plant; Rocketdyne, Los Angeles, Calif.

Northwest Airlines Inc., Flight Crews, St. Paul, Minn.

Olin Mathieson Chemical Corp., (4): Film Div., Olin Works, Covington, Ind.; Huttig, Ark., Saw Mill; Packaging Div., Flooring Plant, Shreveport, La.; Paper Mill, West Monroe, La.

Oliver Corp., Plant 1, Battle Creek, Mich.

Owens Illinois Glass Co., Kimble Glass Div., Warsaw, Ind.

Owens Illinois, Multiwall Bag Div., Valdosta, Ga.

Paulus Bros Packing Co., Hawaiian Pineapple Co. Ltd., Salem, Ore.

Penn Dixie Cement Corp., (5): Buffalo, N. Y.; Clinchfield, Ga.; Kingsport, Tenn.; Plant No. 6, Bath, Pa.; West Des Moines, Iowa.

Pennsylvania Electric Co., Johnstown, Pa.

Pennsylvania Salt Manufacturing Co., Cornwall Heights, Pa.

Perfect Circle Co., Tipton, Ind.

Petrolite Corp., Tretolite Co., Webster Groves, Mo.

Chas Pfizer & Co. Inc. (2): Brooklyn Plant; Vico Plant & Research Center, Terre Haute, Ind.

Phelps Dodge Corp., Copper Queen Branch, Bisbee, Ariz.

Philippine Long Distance Telephone Co., Manila, Philippines.

Phoenix Steel Corp., Plate Div., Harrisburg, Pa.

Pillsbury Mills Inc., (2): Pillsbury Mills, Wellsburg, W. Va.; Globe Mills Div., Astoria, Ore.

Pittsburgh Plate Glass Co. (4): Works Number 7, Cumberland, Md.; Ditzler Color Div., Detroit, Mich.; Glass Div., Research Lab., Creighton, Pa.; Works 9, Crystal City, Mo.

Portland Gas & Coke Co., Portland, Ore.

Portland General Electric Co. (2): Electrical Maint. & Const. Dept., Portland, Ore.; Portland, Ore.

H. C. Price Co., Pipeline Construction Div., Spread No. 1, Flagstaff, Ariz.

Procter & Gamble Co. (9): Baltimore, Md., Plant; Cincinnati Toilet Goods Plant, Ivorydale, Ohio; Ivorydale, Ohio, General Plant; Ivorydale, Ohio, Process Plant; Ivorydale, Ohio, Production Plant; Macon, Ga., Plant; Miami Valley Laboratories, Venice, Ohio; Port Ivory Food Prod. Plant,

Staten Island, N. Y.; Quincy, Mass., Plant.

Public Service Company of Colorado, Denver, Colo., Entire Company.

The Pullman Co. (2): Atlanta, Ga., District; Richmond, Va., District.

Pullman Standard Car Mfg. Co., Pullman Car Works, Chicago.

Quaker Oats Co. (2): Cedar Rapids, Iowa; St. Joseph, Mo.

Radio Corp. of America (2): RCA Victor Record Div., Hollywood, Calif.; Indust. Electronic Prod., Detroit, Mich.

R C A Service Co., Inc., Cherry Hill Plant, Camden, N. J.

Ralston Purina Co. (4): Circleville, Ohio, Branch; Fort Worth Texas, Branch; Omaha, Neb., Branch; St. Johnsbury, Vt., Branch.

Raytheon Co., Industrial Components Div.

Remington Arms Co. Inc. (2): Ilion, N. Y.; Misc. Field Sales Group, Bridgeport, Conn.

Remington Rand Div., Sperry Rand Corp., Shreveport, La.

Remington Rand Univac, Sperry Rand Corp., St. Paul, Minn.

Republic Steel Corp. (5): Steel and Tubes Div., Brooklyn, N. Y.; Steel and

Tubes Div., Cleveland, Ohio; Steel & Tubes Div., Detroit, Mich., Plant; Steel & Tubes Div., Elyria, Ohio, Plant; Union Drawn Steel Div., Massillon, Ohio.

Reynolds Metals Co., (2): McCook Sheet & Plate Works, Brookfield, Ill.; Jones Mills Plant, Malvern, Ark.

Rheem Manufacturing Co., (2): Houston, Tex.; New Orleans, La.

Rockfield Canning Co., Jackson, Wis., Libby Subsidiary.

Russell Miller Milling Co., Buffalo Mill, Buffalo, N. Y.

Southwestern Electric Power Co., Shreveport, La.

Southwestern Portland Cement Co., (2): El Paso, Tex.; Fairborn, Ohio.

St. Joseph Lead Co. of Pennsylvania, Joseph Town Smelter, Monaca, Pa.

St. Louis Public Service Co., St. Louis, Mo.

St. Marys Kraft Corp., Kraft Bag Corp., St. Marys, Ga.

St. Regis Paper Co. (2): Panelyte Div., Kalamazoo, Mich.; Superior Paper Products Div., Mount Wolf, Pa.

St. Regis Paper Company of Canada Ltd., Vancouver, B. C.

F & M Schaefer Brewing Co., Albany, N. Y.

Schenley Industries Inc. (2): Geo. T. Stagg Co., Lebanon, Ky.; Louisville, Ky., Coop Plant 2.

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Joseph E. Seagrams & Sons, Old Farmers Distillery, Athertonville, Ky. Shawinigan Resins Corp., Springfield, Mass.

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Shenango Furnace Co., Sharpsville, Pa.

Sherwin Williams Co. (2): Cleveland, Ohio; Detroit, Mich.

Simplex Wire & Cable Co., Mfg. Insulated Wire & Cable, Cambridge, Mass.

Sinclair Refining Co. (2): Manufacturing Dept., New York City; Marcus Hook, Pa., Refinery.

Southern California Gas Co., Los Angeles, Calif.

Southern Maid Paper Co., Elizabeth, La.

Spencer Kellogg & Sons Inc., Decatur, Ill.

Stauffer Chemical Co., Chauncey, N. Y.

Superior Tube Co., Norristown, Pa. Sutherland Paper Co., Kalamazoo, Mich.

Sylvania Electric Products Inc. (5): General Eng., Emporium, Pa.; Lighting Div., Waldoboro, Maine; Mech. Develop., Salem, Mass.; Mill Hall, Pa., Plant; Parts Div. Plastics Sub. Assem., Titusville, Pa.

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Circle Item No. 54—Reader Service Card



## RESUSCITATION DEVICES?

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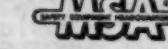


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## HEAD PROTECTION?

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Circle Item No. 53—Reader Service Card  
National Safety News, August, 1960



## Conductive Flooring

From page 30

A conductive floor should have a resistance low enough to prevent the buildup of dangerous static-charge voltages. Yet its resistance should be high enough to prevent sparks or severe shocks from electric power lines or equipment that might become defective.

According to NFPA, floors should have a resistance falling between 25,000 and 1,000,000 ohms when measured between specified electrodes that are 3 ft apart. The upper limit specified by NFPA provides a safety factor of more than 10, even under conditions of low humidity, if materials such as wool and plastics are prohibited.

In the Bureau's laboratory investigation, however, electrodes were spaced at 1-ft intervals—necessary because of the 18 x 18-in. sample size that was chosen for convenience in the experimental work. A preliminary study showed that this spacing would yield experimental results very close to those obtained

from tests of an entire floor at an electrode spacing of 3 ft. Electrical tests were made under deliberately varied conditions of relative humidity and applied voltage. In addition to the laboratory tests on samples of flooring, field tests were made on five different types of conductive floors installed in hospitals.

**Test Results.** Results from studies of the influence of moisture and other factors showed that conductive floors should give satisfactory service in hospital operating rooms if certain precautions are observed. If oxychloride floors are used, the humidity of the air in the room in which they are installed should be controlled, and the cleaning schedule for the floor should be carefully established and maintained. Laboratory tests indicate that otherwise the electrical resistance of the floor may fall outside the accepted limits.

The durability and appearance of at least two of the available materials (linoleum and rubber) may depend on periodic waxing. Conductive waxes containing carbon black which do not deposit an insulating film are available, and should be esthetically as well as electrically satisfactory on these uniformly black floors. Sealers should probably not be used on conductive floors until proven satisfactory by extensive electrical tests.

**Electrostatic Tests.** To substantiate the electrical test results, additional tests were carried out in which each type of floor was actually used to reunite electrostatic charges. Thus, a direct test was made of each flooring's effectiveness in eliminating static electricity hazards.

There was excellent correlation between the electrical and electrostatic tests.

**Nonelectrical Properties** studied were indentation, scratch resistance, slipperiness, scrubbing, water absorption, and stain resistance. Results of each study showed that the characteristics of the conductive materials are comparable to those of the corresponding nonconductive materials.

Of the properties studied, scratch resistance is probably the most important in hospital operating room floors for the sake of cleanliness as well as for ensuring good contact resistance.



## GAS MASKS?

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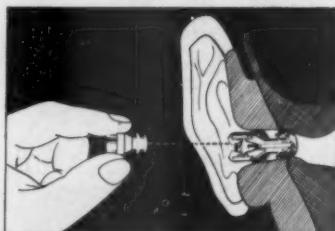
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Circle Item No. 62—Reader Service Card

## PERSONALS

News of people in safety and related activities

ROBERT D. GIDEL has been named assistant director for safety of the U. S. Department of Labor's Bureau of Labor Standards, Arthur W. Motley, Bureau director, has announced. Chief of the Bureau's Division of Safety since August 1957, Mr. Gidel continues in this capacity.

The new designation takes into account increased responsibilities of the Department arising from recent legislation calling for the development of safety standards in the maritime industry. Mr. Gidel has recently directed an expansion of the Bureau's safety staff and programs in the area of maritime code development and special safety training services.

Mr. Gidel also directs Bureau accident prevention programs involving training of state safety inspectors, union representatives, and federal employees; assistance to state labor departments on safety programs in high accident rate industries; safety code development; and dissemination of safety information.

Mr. Gidel joined the Bureau in 1955 as supervising safety engineer with the Division of Safety. Previously he had been a senior consulting engineer for the National Safety Council, a supervising engineer with the Hartford Accident and Indemnity Company, and a specifications engineer and installer with the Western Electric Company.

M. R. BATCHE has been appointed manager of safety for all manufacturing plants of The Firestone Tire & Rubber Company, with headquarters in Akron, Ohio.

Mr. Batche started with Firestone in 1934 as a technician with the Xylos Rubber Company. He later became assistant plant foreman and in 1945 was named safety and service manager for the Xylos plant. He joined the company's safety department in 1955.

Born in Jamestown, Pa., Mr. Batche attended the University of



M. R. Batche

Akron. He is a past chairman of the Rubber Section, National Safety Council, and the McKinley chapter of the American Society of Safety Engineers. He also belongs to the Ohio Society of Safety Engineers and the Ohio State Safety Council.

DAVID N. WISE, manager of applied research and engineering in the Safety Products Division of Mine Safety Appliances Company, Pittsburgh, has been elected a national vice-president of the Society for Advancement of Management.

Mr. Wise, who has been associated with MSA for 23 years, is a former president of the Pittsburgh Chapter of the management group and has represented that unit as a national director.

RALPH S. WILLIAMS has been elected president of Corporate Service, Inc., Detroit, Mich., succeeding CLARENCE T. WILSON who was elected chairman of the board. Mr. Williams had been executive vice-president of the firm of consultants on workmen's compensation plans. Mr. Wilson was one of its founders 28 years ago. BURT E. BALLARD, claims attorney for the past 15 years, was named assistant secretary.

# CONSULTATION CORNER



By L. C. SMITH, Industrial Department, NSC

*Questions on accident prevention, fire protection and occupational hygiene are answered by mail. A few are selected for publication*

## Color coding hard hats

**Question:** Are there any standards for the color coding of hard hats? In our operations we have a number of departments, and we're thinking of color coding the hats to designate the wearer's department.

**Answer:** No standards have been developed for the color coding of hats. However, some industries have developed color codes. This is a typical example:

- Red—Pipe workers
- Blue—Fitters
- Green—Welders
- Buff—Riggers
- Yellow—Electrical workers
- Black—Laborers
- Gray—Burners
- Brown bottom, white top—Painters
- Red bottom, blue top—Machinists
- Gray bottom, white top—Shear

men and blacksmith shop employees

Lavender—Expeditors

Aluminum—General foremen

Brown bottom, yellow top—Caulkers and sanders

A black line on a helmet indicates a foreman and a red line a leaderman. Badge numbers are also stenciled on the front of each helmet.

As you probably know, hats are available from most manufacturers in seven standard colors—white, gray, red, green, blue, brown and black. Other colors are available on special order.

If you're thinking about painting your present hard hats, it would be best to consult the manufacturer first. Some paints reduce the dielectric protection; others attack and soften the shell material, and this reduces impact protection.

## Oil mist lubrication

**Question:** We are using an oil mist lubrication process on several of our machines. Our experience thus far has been good, but we have heard such operations often cause an oil pneumonia. Do you have any information on this subject?

**Answer:** To our knowledge there are no cases of oil pneumonia on record resulting from industrial exposures. However, there are cases of oil pneumonia or lipid pneumonia in individuals exposed to oily nose sprays.

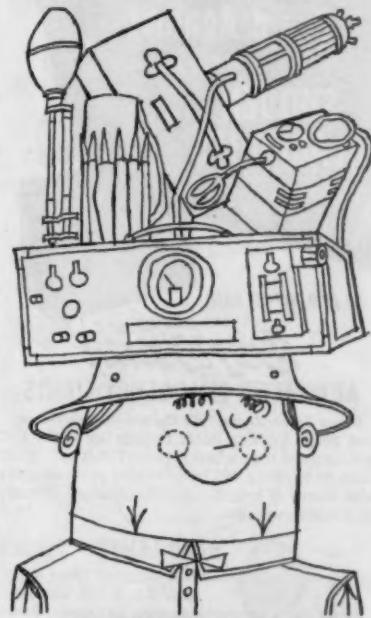
Machine shop operations using oil coolants would appear to have a much greater exposure to oil mists than that from an oil mist lubrication process. Most companies regard such operations as dangerous from the standpoint of fire hazard, but not from the standpoint of toxicity.

To decrease the fire hazard many

companies have installed electrostatic precipitators to collect the oil mist or have switched to a synthetic coolant of the glycol family.

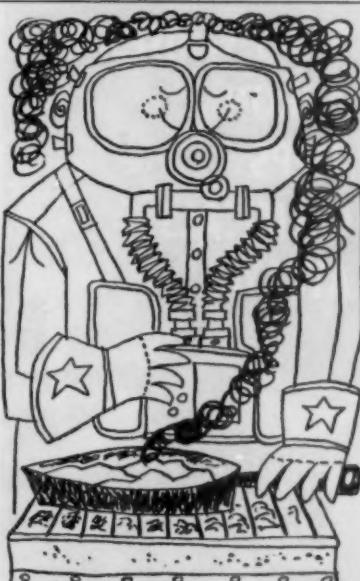
To make certain you do not have a health hazard, it would be prudent to determine the concentration of oil in the area around the breathing zone of the operator. A maximum acceptable concentration for oil mist, used by many industrial hygienists, is 15 milligrams per cubic meter. One city has established a tentative threshold limit value of 10 milligrams per cubic meter, and one state has set a tentative limit at 5 milligrams per cubic meter. In any event it would be well to determine the concentration first and then proceed from there with your controls.

You probably have more of a nuisance and fire hazard than you do health hazard, but you should check to make certain.



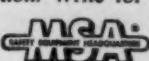
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Only \$6.30 for six plus postage.

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## COMING EVENTS

in safety  
and  
related fields

#### Sept. 14-16, Raleigh, N. C.

Second Annual Plant Engineering and Maintenance Seminars. J. R. Ogburn, Industrial Experimental Program, School of Engineering, North Carolina State College, Raleigh, N. C.

#### Sept. 15-16, Rockland, Maine.

Thirty-third Annual Maine State Safety Conference (Samoset Hotel). Arthur F. Minchin, secretary, Department of Labor and Industry, State House, Augusta, Maine.

#### Sept. 22-23, Baltimore, Md.

Governor's Annual Safety Health Conference and Exhibit (Hotel Emerson). Joseph A. Haller, executive chairman, Safety Conference, State of Maryland, 301 W. Preston St., Baltimore 1, Md.

#### Sept. 27, Manhattan, Kan.

Eleventh Governor's Industrial Safety Conference of Kansas, (Kansas State University). Harold L. Smith, Commissioner of Labor, c/o Department of Labor, 401 Topeka Blvd., Topeka, Kan.

#### Oct. 10-12, Charlotte, N. C.

Twentieth Congress on Industrial Health (Hotel Charlotte). Dr. B. Dixon Holland, secretary, Council on Occupational Health, American Medical Association, 535 N. Dearborn St., Chicago 10.

#### Oct. 17-21, Chicago.

Forty-eighth National Safety Congress and Exposition (Conrad-Hilton Hotel). R. L. Forney, secretary, National Safety Council.

#### Oct. 26-27, Pittsburgh, Pa.

Twenty-fifth Annual Meeting, Industrial Hygiene Foundation (Mellon Institute). Dr. H. H. Schrenk, managing director, 4400 Fifth Ave., Pittsburgh 13, Pa.

#### Mar. 14-15, Fort Wayne, Ind.

1961 Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, manager, Fort Wayne Safety Council, Chamber of Commerce Building, Fort Wayne, Ind.

## Sanitation Is Fundamental

From page 23

and brought to the attention of top management could well be the first step toward uplifting plant maintenance and establishing a better foundation for the safety program.

A safety program usually has the following elements:

1. Statistical.
2. Safety indoctrination of supervision and labor through education, organization and psychological and incentive devices.
3. A direct attack on hazardous working conditions through surveys, physical corrective measures, and systematic reports and re-inspections.

In some operations the exposures and hazards may be so critical and extensive as to require industrial hygiene engineers, physicians, dermatologists and laboratory services to evaluate them, devise corrective measures, and check periodically the health of the workers.

Suppose all this has been done and an apparently adequate program of safety and industrial hygiene is in operation. How often is it prac-

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ticeable for the safety director or his staff assistants, if any, to inspect the work environment and to verify the continuing effectiveness of the physical conditions and facilities for safety?

There can be no assurance that production and engineering maintenance personnel will concern themselves consistently with safety, even though their contributions are vital in terms of incidental concern for machine safety and surveillance of employee work habits. The plant safety record and the standings of departments may be publicized and given competitive stimulus, but all this still needs the firm support of organized sanitation in the plant.

**Specific contributions.** Assuming a well-organized, capably supervised program exists, what can industrial sanitation contribute to safety?

First, employees are entitled to well-maintained personal facilities—clean toilets, washing equipment, lockers, and perhaps in-plant food service in which hazards of infection are kept to a minimum. For ex-

ample, failure to require effective disinfection of dishes and utensils in a cafeteria dishwashing machine can contribute to sporadic and even epidemic illness, without awareness of the cause.

While actual checking of this environmental weak spot might be done by a safety director, a plant nurse, or someone in mechanical maintenance or personnel, it is far more likely to be done with some realism and consistency by supervision of organized environmental sanitation.

Floors can provide a comfortable, reasonably slip-free work surface or they can be so poorly finished and cleaned as to contribute significantly to the accident rate. One of the prime functions of industrial sanitation is maintenance of floors. The methods, finishing materials and cleaning require much study and skill to allow workers to move about their tasks freely and securely. This concern of industrial sanitation for floor safety has stimulated the shift from waxes to synthetic resins, and from lacquers and oils to epoxy finishes.

When guards on machines are prescribed and installed, who keeps them on? Possibly the supervision of the production unit may do it in part, especially if persistent safety education is applied. The engineering and maintenance service keeping these machines running may likewise respond to safety education to keep pressure on the mechanics.

However, observation has led to the conviction that employees doing loosely supervised machine maintenance are the most frequent offenders in matters of safety. Did you ever see a mechanic on his own initiative clean the eyeshield on a bench grinder? We have countered this situation in our plants by having the sanitor assigned to drinking fountains include grinder shields in his cleaning routine.

Cleanliness and disorder are incompatible. Disorder, in terms of things out of place, waste and scrap not removed, and obstructions under foot are all accident hazards. It is expected that the plan with systematic sanitation maintenance will continuously straighten out confusion and reduce unnecessary causes of disorder.

—Turn page

## Metal Standard Signs

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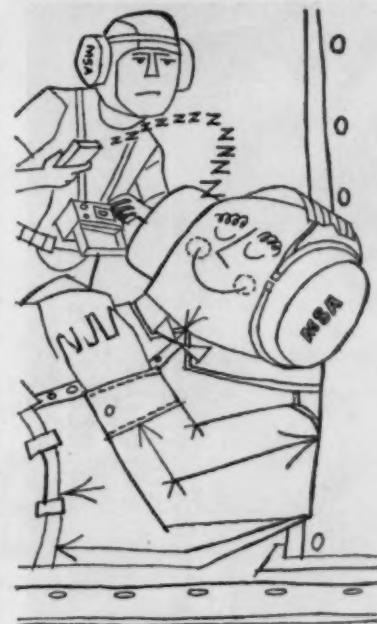
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Circle Item No. 67—Reader Service Card  
National Safety News, August, 1960

Circle Item No. 68—Reader Service Card



## NOISE?

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**MSA** Safety Equipment Manufacturers Appliances Company, Pittsburgh 8, Pa.

## KENNEDY HEAD SNUGGER Winter Liners



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The Original and Only "Head Snugger"  
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three-quarters  
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Circle Item No. 70—Reader Service Card

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**Work hazards.** Industrial sanitation has its share of work hazards. It involves much high level work with scaffolding, walkways and ladders for cleaning and painting and for servicing of lighting fixtures. Power machines, such as sweepers, vacuum cleaners, scrubbers, floor sanding and buffing machines, steam guns, and air jet streams all have hazards to be controlled by supervision through training and surveillance.

Pest control has toxic fumigants, insecticides and rodenticides. The cleaning of production machinery has special problems of protection of wiring and motors and of power shut-offs during work on equipment cleaned in place. In our plants, sanitation has been able to eliminate carbon tetrachloride in machine shops and elsewhere in favor of less toxic degreasing agents except where fire and explosion hazards are a factor. Selection of detergents and other cleaning agents is always done with due regard for dermatitis and handling hazards.

**Plant security.** Supervision of industrial sanitation occupies a strategic position of natural responsibility for fire safety and for participating in emergency organization in which, of course, a safety director would have a primary role. Sanitation supervision has personnel suitable for training and deployment to emergency duties and stations, and the normal work of these employees makes them familiar with the entire plant.

As between the supervisory staffs of production, mechanical maintenance, and industrial sanitation, it would seem logical to assign plant security to the latter. The assignment, training, surveillance and rotation of guards is an element of maintaining order in the work environment, and supports over-all plant safety, both of life and of property.

**Safety committees.** It has long been the practice of safety directors to set up and work through plant safety committees as a means of spreading the concern for safety to all supervision and involving them in the specific problems of safety. Committees are valuable for purposes of discussion, dissemination of

ideas, resolving of procedural problems and arriving at conclusions. But they are no good for performance.

There have been instances of companies trying to deal with sanitation by committee — which were about as successful as if they had been trying to maintain mechanical equipment by committee. Beyond the plant safety committee, varying degrees of safety performance become the responsibility of departmental supervision, each in its own limited area. But only one department—industrial sanitation—covers the entire plant and has within its basic function a built-in concern for the safety of plant and employees.

**Nabisco performance.** In the bulk of our plants, about 1,400,000 man-hours of direct sanitation labor are recorded each year. For the past four years, 24 disabling injuries have occurred in this labor group—an average of 6 per year and a rate of 4.3 per million man-hours. Our over-all company rate has been about 10 per million man-hours. We believe our low rate in sanitation is due not only to the nature of the work but to the good quality of sanitation supervision and the tools provided.

Our company frequency rate of 10 per million man-hours is about 40 per cent under the baking industry average of 16 plus, a figure substantially reduced by the inclusion of our own substantially lower accident experience. Our own safety director strongly supports our conviction that the relatively high level of sanitation maintenance maintained in our plants through separating the industrial sanitation function and giving it capable supervision has contributed to our low accident rate.

Experience leads us to believe that the executives and safety director of any manufacturing company wishing to improve its safety record would do well to examine the organizational position of industrial sanitation and the quality of its supervision. By executive support of soundly organized and managed plant sanitation, a solid foundation can be placed under the safety program, with a satisfying rise in the company's standing, as well as fewer accidents and higher morale among employees.

## Diary of a Safety Engineer

—From page 11

these local workers and their state of mind.

I've been very stupid about this. I should have seen what it was at once and called for help from the one man on my staff I hired just because he was one of these local people himself—Bert. But because Bert is my junior assistant, and because I had a false sense of self-sufficiency, I've been loading all the routine on him to free me to work.

Now Bert's going to have to pay for my stupidity by losing part of his weekend. I've just called him away from his weekly pinochle game with the Ryans and told him to meet me here at 9 a.m. tomorrow.

5 p.m., Saturday, August 6

Bert and I met at the plant and I briefed him and asked his advice. It took an hour to lead him away from the blind alleys my thinking had been running down, and to see the problem as a neighborhood one.

As soon as that was established, Bert went into high gear. We arranged a lunch at the hotel in the county seat for a group of citizens hand-picked by Bert: Bill Martin, the high school shop teacher; Leroy Burns, the county agricultural agent; Lou Barton, the young editor of the surprisingly good county weekly; and Jenny Morgan, the county health department's visiting nurse.

Their diagnosis was uncommonly unanimous and, I strongly suspect, very close to accurate. Without trying to recreate the discussion or to assign individual ideas to individual participants, the common conclusion runs about like this:

When the project came to this area, it seemed like a bonanza to the local residents. Agriculture was not thriving, and farms needed fewer hands. The old-line industries of the county were in bad shape, dominated by a few old families, and staffed, in the main, by workers in upper middle-age. Modern progressive industrial enterprises, it seemed to the residents, were going to open the way to fortune and contentment among young people who had been raised with the expectation of moving to Chicago to find work after their schooling ended.

This good feeling persisted as the

plants were built, began operations, and hired young local workers (plus some skilled older ones). The fact that supervision and most skilled workers came in from the outside did not cause any resentment—it was an obvious necessity. Wages were somewhat above the old local levels. Almost all the new workers got some on-the-job training and began to dream of promotion and opportunities for leadership.

By and large, then, these young workers were in a mood to listen to

their supervisors, learn their jobs, and obey the rules. If a few individualists couldn't fit into industrial discipline, there were plenty of others to take their places.

Inevitably, living with a reality proved different than dreams about it. Wages had a way of looking less impressive after deductions for taxes, social security, hospitalization, union dues, and company pension plans. Rents in the area skyrocketed.

Then the excitement of new jobs died away. Most of the young work-

Circle Item No. 72—Reader Service Card

### WHY RISK A TRAFFIC ACCIDENT IN YOUR PLANT?



**KLEAR-VU SAFETY MIRRORS** are the answer to the dangerous blind corner problem in your plant or warehouse. They are also adaptable for outdoor use in your parking lot, loading dock area or other points where traffic converges.

Mounted at cross aisle intersections, entrances and exits at a height of 8 to 10 feet, Klear-Vu Safety Mirrors clearly reflect oncoming intersection traffic to both power truck operators and pedestrians.

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ers were in the unskilled or semi-skilled brackets, and they found that industry does not provide a high-speed elevator to the top of the organization chart. This, combined with the fact that not all the imported supervisors and skilled hands were balls of fire, led to the development of discontent.

The local people say they knew about this last spring—it had showed up in more drunk and disorderly arrests on Saturday night, in a very

large number of marriages among younger girl workers, and in a growing sophistication about industry—a shallow sophistication. Girls who had, three years ago, been glad to clerk in the Main Street stores for 60 cents an hour were now shifting from Plant A's \$1.23 to Plant B's \$1.35.

Union meetings began to be better attended and noisier.

Yet, Bert insisted and most of the others agreed, most of the young

workers accepted safety instruction uncritically. They were still a little awed by big machinery and stern foremen, still tended to believe in rules and the wisdom of those who enunciated them.

In this situation, the Sweet-Sweet explosion came as a jarring, disillusioning shock. People who had not done anything wrong were killed and injured. The engineering factors that turned this candy plant into a bomb were too complex for most of the young people to understand, and were, in any case, beyond the control of the individual worker.

Jenny summed up the group's thinking when she said, "After that disaster, the youngsters began to become either fatalistic about accidents or cynical about the efforts of companies to prevent them."

Having agreed on a diagnosis, we went on to consider the strategy of counterattack. This is what we propose to do:

1. To kick off a community discussion with a series of thoughtful articles in Lou's county weekly—articles he will write in consultation with me and Bert. They will acknowledge the fact of the disaster, but they will try to set this event in its proper perspective and proportion.

2. Jenny will be a missionary to the stay-at-home women on her calls, talking of accident causes and accident costs to the individual family.

3. Leroy will do the same in connection with his farm-safety work with farmers—most of whom have sons working on the project.

4. Bill Martin will work with me next fall to strengthen the safety side of high school shop instruction.

5. Bert will do his best to make union leadership receptive to safety education.

6. And my main job will be to work with the corporate personnel departments on the project in a broadly conceived drive to accomplish better employee orientation.

All of which is a very large order, and results may be neither quick nor certain.

But it feels good to have the problem defined and to have recruited some allies for the war ahead.

I'm off for the lake now, for a swim, for a campfire with the family on the beach, and for what I am sure will be a good night's sleep.

Circle Item No. 74—Reader Service Card

# CAUTION YOUR EMPLOYEES! with Ready Made SIGNS!

**READY MADE SIGNS** are made in accordance with American Standards Association Specifications for Industrial Accident Prevention.

• WRITE FOR COMPLETE CATALOG  
**SIGNS FOR SAFETY**

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Size 4½" x 10¾".....\$7.00  
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## Wire from Washington

—From page 17

The Roberts Committee report said that "incompetent and irresponsible drivers are a hazard to interstate commerce." The Bureau of the Budget urged that responsibility be left with the states. Prior to its action, the Senate held hearings on S. 3745, an identical bill, during which the National Safety Council testified.

The Senate Subcommittee on Surface Transportation held hearings on H.R. 1341, the Roberts bill to provide for standards for federally-owned motor vehicles (See "Wire," Oct. 1959). Maj. Gen. George C. Stewart testified in behalf of the National Safety Council and urged the federal government to take leadership in recognizing the value of proven safety devices by having them installed in government vehicles.

The Department of HEW appropriation bill, H.R. 11390, was amended on the Senate floor to include \$1,000,000 to administer PL 86-493, the so-called Schenck bill, providing for a Public Health Service study of auto exhausts (See "Wire," July 1960). Lab studies and field appraisals of conditions in various communities are to be undertaken. This sum is in addition to almost \$5,000,000 for the Federal Air Pollution Control Act.

Congress has been giving widespread attention to mass transportation. It passed and sent to the President H.R. 11135, as amended, the National Capitol Transportation Act, to aid in the development of an improved transportation system for the District of Columbia (See "Wire," July 1960). A federal agency is created to develop proposals for subways and surface rail lines, new railroad commuter service, and coordinated mass transportation. No part of the program thus developed is to be carried out without further legislation. Congress said that traffic congestion was the principal cause for the legislation and a rapid transit system the principal remedy.

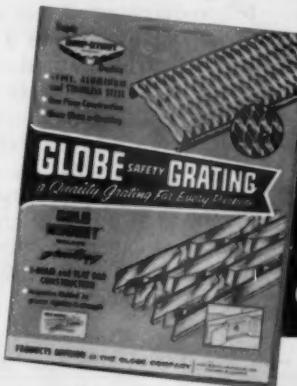
A more general mass transportation measure, S. 3278 (See "Wire," July 1960) was passed by the Senate in amended form, over administration opposition. It authorized: (1)

\$100 million in interest-bearing federal loans to states and local communities for the development of commuter services and mass transportation systems, and (2) the use of urban planning grants, under the Housing Act of 1954, for comprehensive transportation planning.

The Senate Banking and Currency Committee said that "the United States today is in the throes of an urban transportation crisis." Its report foresaw "a total breakdown"

of metropolitan transportation networks due to the increase in motor vehicles, and concluded that it was the federal government's responsibility to stem the "decline and deterioration" of mass transportation services. "Traffic congestion," said the committee, "acts as a brake on the economic growth of the metropolitan areas" and thus of the nation as a whole. The Senate committee called for "immediate federal action."

Circle Item No. 76—Reader Service Card



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## New Globe SAFETY GRATING CATALOG

Completely illustrated with full data, load charts and specifications on these two superior open steel floor gratings:

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## CUT DOWN NOISE WITH THE S M R EARSTOPPER

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Circle Item No. 77—Reader Service Card

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Senator Williams (N.J.), the bill's sponsor, said: "We must, of course, build for this increase in the number of cars on the road. But we have failed to realize the consequences of our roadbuilding effort if the serious decline in mass transportation is continued. The consequence must inevitably be either a virtual paralysis of urban transportation—which this country cannot afford—or a vast enlargement of our highway building program in urban areas [and a consequent increase in gas taxes]."

The Federal Highway Administrator announced that 84.5 million motor vehicle operators' licenses were in force in the United States during 1959, a 3½ per cent increase over 1958. This amounts to 1.2 licensed operators per registered motor vehicles in 1959. The administrator also announced that in 1959, for the first time, state highway-user taxes passed the \$5 billion mark, with a total of \$5.1 billion collected. This was a gain of 8.3 per cent over 1958. The figure includes fuel tax,

vehicle registration fees and other vehicle and carrier fees.

**Motor Transportation.** The House Judiciary Committee favorably reported on S. 1806, with amendments, to revise the Transportation of Explosives Act (See "Wire," Oct. 1959).

**Public Health.** The Congress passed S. 1283, the Federal Hazardous Substances Labeling Act (See "Wire," May and July 1960), and sent it to the President for signature. The bill requires manufacturers to label products intended or suitable for household use, where a hazard is involved, to list the product's ingredients and, where necessary, indicate an antidote. Coverage includes: toxicants, corrosives, irritants, strong sensitizers, flammables, and items generating pressure. The Secretary of Health, Education and Welfare may bring under the bill's coverage, by regulation, radioactive and other hazardous substances.

The Congress also passed S. 2197, as amended, to regulate the safe use of color additives in foods, drugs and cosmetics. (See "Wire," June 1960.) The bill requires users to establish safety of additives prior to use and treats coal-tar and other color additives alike. It includes the much-debated anti-cancer clause whereby a color additive shall be deemed unsafe, and therefore unusable, for any use which will or may result in ingestion of all or any part of such additive if the additive is found to induce cancer when ingested by man or animal, or if found to induce cancer in man or animal by other tests considered appropriate for the evaluation of the safety of additives for use in food. The bill authorizes *ad hoc* advisory committees to aid the Department of Health, Education and Welfare in determinations involving the anti-cancer clause.

**Marine Safety.** The International Conference on Safety of Life at Sea, meeting in London, England (See "Wire," June 1960), adopted safety regulations for nuclear-powered ships. It also approved a series of recommendations to guide governments in applying the regulations, such as need for special attention to the structural strength of nuclear ships, and steps to provide maximum protection against accidents that release radioactivity.

## CLIP FILE



News of Interest in the Field of Noise Control

## Sounding Board

### "STEEL CLAD" TELEPHONE BOOTHS KEEP NOISE OUT—CONVERSATION IN



Wall Model "NOISHIELD"  
Telephone Booth installed in  
a machine shop.

IAC "NOISHIELD" telephone booths are engineered for high acoustic efficiency to provide ease of conversation in noisy locations or privacy of conversation where desired.

Featuring rugged steel-clad construction, attractive finishes and low cost, these booths are ideal for factories, public buildings, terminals, schools, laboratories, restaurants, stores and for all noisy locations. IAC "NOISHIELD" booths are also available in floor models.



For complete information ask for Bulletin D-61 R1—Dept. NS-8

**INDUSTRIAL ACOUSTICS COMPANY, INC.**

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**Government Organization.** The Secretary of Health, Education and Welfare recommended to Congress a major administrative change in the Public Health Service, to provide for a new Bureau of Environmental Health, and a new National Center for Health Statistics. The recommendation stems from a congressional request that the PHS study its organization and activities in the field of environmental health. According to the secretary, H.R. 12550 (the Administration bill) "in no way extends or modifies the substantive or program authorities of the surgeon general of the [PH] Service."

In connection with the proposed Bureau of Environmental Health, the secretary made special reference to water pollution control, air pollution control, and radiological health.

# New SAFETY EQUIPMENT

Product announcements in this section are reviewed for compliance with the advertising policy of the NATIONAL SAFETY NEWS. Inclusion should not, however, be construed as endorsement or approval by the National Safety Council.



## Ash Tray Encourages Safety

This all-steel ash tray, fastened to walls, posts, columns, work benches, and machines, is designed

to encourage smokers to keep cigarette butts off the floor. The tray can be filled with white sand or oil absorbents (fuller's earth). A clip beneath the tray sifts out butts without need for removing the tray from the wall. Two sizes are available in fire engine red finish.

**Safety Floor Products, 3038 W. 84th Place, Chicago 52, Ill. (Item 301)**



## Facepiece for Air Line Respirators

U.S. Bureau of Mines approval has been awarded the M-S-A Clearvue facepiece for use with the company's air line respirators. This facepiece is a monocular unit developed by

MSA in 1959 for application to the company's breathing apparatus. It provides increased visibility, anti-fogging protection, and improved speaking diaphragm; and permits the fitting of standard size prescription glasses without breaking the facepiece seal.

The approval includes application of this product to the Constant Flow Air Line Respirator and the Demand Air Line Respirator. It extends previous approvals to the M-S-A All-Vision facepiece, and the M-S-A Comfo facepiece.

**Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh 8, Pa. (Item 302)**

For More Information—Circle Item Number on Reader Service Postcard



## Goggles Help Vision, Safety

See-Weld magnifying goggles reportedly provide improved vision and protection and eliminate the use of spectacles and cover-glass goggles while welding. See-Weld magnifying lenses only, for standard welding goggles, are also available.

**Buell W. Nutt Co., 11614 W. Pico Blvd., Los Angeles 64, Calif. (Item 303)**



## Device Locks Plugs In

This safety plug lock prevents accidental disconnection of any electrical appliance that plugs in. This device locks the plug into the outlet and prevents shorts due to partial contact. The lock adjusts to any size plug.

**Safety Plug Lock Corp., 1270 Broadway, New York 1, N. Y. (Item 304)**



## More Gloves In Welders' Line

Riegel Textile Corporation's welders' line now includes extra-large, jumbo size, spot, and heavy welder gloves. These can be obtained with and without linings, and will be made

of the same quality materials as their regular size counterparts.

**Riegel Textile Corp., 260 Madison Ave., New York 16, N. Y. (Item 305)**



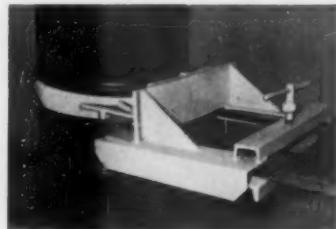
### Face Shield with Variable Windows

A face shield designed for industrial protection is now being distributed. Designated Feather-Lite F-90, this face shield

weighs  $3\frac{1}{4}$  oz. with a  $6 \times 11\frac{1}{2} \times 0.020$ -in. window. It features replaceability of its parts and enables the use of a variety of windows or screens.

Its headband (adjustable in  $\frac{1}{8}$ ths from 6 $\frac{1}{2}$  to 8) is of polyethylene. The headband will not mildew, rot, or sour and may be cleaned with any detergent or soap. The vulcanized fiber deflector will accommodate large spectacle frames. The window-deflector section pivots and remains secure in working position on friction joints.

**Fibre-Metal Products Co., 5th & Tilghman Streets, Chester, Pa. (Item 306)**



### Mechanical Drum Handling Arms

Kughler Vert-O-Matic drum arms handle many sizes of steel drums containing scrap metals and other shop waste. They can be mounted on the forks or apron of lift trucks and most walkie and straddle trucks. The mechanical drum handling arms automatically pick up drums in the vertical position, one or two at a time. Drum damage is reported eliminated.

The apron-mounted unit is for continuous drum handling; the fork-mounted unit is for intermittent handling. This product is also useful for narrow aisle stacking, as arms take up little more space than the drums.

**Little Giant Products, Inc., 1530-50 N. E. Adams St., Peoria, Ill. (Item 307)**



### Voice Gun Simple, Effective

The Model A-12 Voice Gun weighs  $3\frac{1}{4}$  lbs. and is a self-contained public address system consisting of microphone, transistor amplifier, speaker, and power supply in one unit.

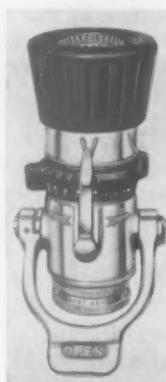
Its horn, handle, and mouthpiece are made of molded "Cyclocac." It is designed to function in summer heat

For More Information—Circle Item Number on Reader Service Postcard

and sun, rain, snow, and in sub-zero weather.

With transistors instead of tubes, the Voice Gun reduces the number of burned out filaments, broken glass, and worn-out parts. It can be used immediately, without a wait for warmup. There are no adjustments or volume control—the operator raises or lowers his voice.

The Gun is "armed" with eight ordinary penlight batteries, which are slipped into the removable battery clip in seconds and last up to one year in average use. **Wm. A. Holmin Corp., 1212 Eleventh St., Rockford, Ill. (Item 308)**



### Nozzle for Booster Hose

A nozzle has been designed for  $\frac{3}{4}$  or 1-in. booster hose. The nozzle offers a constant flow plus a variable gallonage feature that permits its use on  $\frac{3}{4}$  or 1-in. booster hose without excessive engine pressures.

With 300 ft. of  $\frac{3}{4}$ -in. booster hose, for example, to obtain 100 psi. nozzle pressure at the 15 gpm. setting, it is necessary to operate the pumper at its rated pressure of 150 psi.

When using 1-in. booster hose, the 30 gpm. setting can be used and still not operate the pumper above its rated pressure. This is an increase of about 30 per cent over previous nozzles. The nozzle is lightweight, non-corrosive and hard.

The variable gallonage selector is calibrated in 10, 15, 20, 25, and 30 gpm. at 100 psi. nozzle pressure. Gallonage can be changed without shutting down. The nozzle also features a "flush" position for cleaning which can also be done without shutting down. There is no screen to clog.

The nozzle is hydraulically balanced and can be operated at the highest pressure used in the fire service, yet gives results at the lowest pressures.

The nozzle can be throttled to 10 gpm. or less; it can be used for mopping up operations.

**The Elkhart Brass Mfg. Co., 1032 W. Beardsley Ave., Elkhart, Ind. (Item 309)**

### Goggles Said to Reduce Blind Spots

Welding goggles said to eliminate dangerous blind spots are the Seesall Series FS-250 goggles. This product has angled lens, available in three shades, which provide wide vision and enable the welder or chipper to see the entire work area with a tilt of the head. This, plus lightweight construction, eliminates neck and shoulder fatigue. These goggles fit over all spectacles, allow indirect ventilation, and have a flexible leather protective nose guard.

**National Cylinder Gas Co. Div. of Chemetron Corp., 840 N. Michigan Ave., Chicago 11, Ill. (Item 310)**



### Hat Protects Heads, Ears

Workers requiring safety of hard hats may be protected at the same time from injurious noise by integrated ear protectors. Straightaway ear protectors, made to be worn with any hard hat, are designed to attenuate high, dangerous sound levels, yet permit normal conversation.

Model 372-20 HH includes a smooth flexible cloth harness, placed between the webbing and the top of the hard hat, fitted domes, with vinyl foam ear seals and a chin strap.

**David Clark Co., 360 Park Ave., Worcester, Mass. (Item 311)**



### Unit Reduces Coolant Temperature

Where excessive heat is generated in machining, welding, or electronic devices, coolant solution or oil may get too hot to serve effectively as a coolant.

One Graymills apparatus consists of two pumping units, one that supplies coolant to the tooling area and a second pump that circulates the coolant through the radiator system to reduce the temperature.

Use of this unit will reduce coolant temperatures by about 40 degrees, when such temperatures appear considerably above the ambient room temperature.

Portable, this product can be used with many machine tools. Available in sizes from 5 to 40 gals. with gear or centrifugal pumps, it can be installed quickly and is reportedly virtually maintenance free.

**Graymills Corp., 3705 N. Lincoln Ave., Chicago 13, Ill. (Item 312)**



### Caution Stands Help Pedestrians

Caution stands are visible, two-sided signs of tempered Masonite riveted to galvanized, nonrusting steel frames. Nonmark-

ing rubber feet prevent slipping.

Vivid colors on both sides of the stand—visible

For More Information—Circle Item Number on Reader Service Postcard

even 40 ft. distant—warn pedestrians from hazardous, slippery floors. Freshly cleaned areas are also isolated.

These self-folding stands are assembled and packaged in sets of five. Each set comes with its own metal wall bracket for space-saving storage off the floor.

**Walton-March, 1592 Deerfield Road, Highland Park, Ill. (Item 313)**



### Versatile Hydraulic

A Dutch firm has introduced hydraulic apparatus that permits performance of a variety of operations at heights up to 44 ft. with safety. The unit features a revolving, mobile platform, hinged to the end of a twin-section arm secured to a normal truck chassis. The platform is surrounded by guard rails and has a raised edge.

The device can be used in assembly, repair, cleaning, firefighting, rescue, and military operations. Ordinarily, it is operated from the platform, but can also be controlled from the rotary column on the truck.

The twin-section arm, which revolves and lifts, permits the platform to be raised to any desired height and swung to any selected position. Height of the platform floor is adjustable to any distance from 23½ in. to 39 ft. above ground level. The arm can be rotated 34 ft. horizontally and vertically, and has a 185-degree sweep left and right.

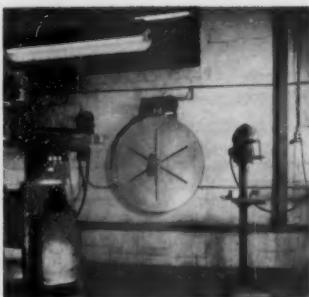
Push-button control electrically operates hydraulic valves, adjusting the platform to its pre-determined position. The hydraulic system is protected so the descent of the platform and the two sections of the arm cannot cause an accident, even if all lines, valves, and couplings should fail simultaneously. Velocity is controlled by a handle, which also activates the motion.

The platform has a load capacity of 550 lbs. and provides room for two operators, their materials, and tools. Sound signals can be transmitted from the platform to the driver's cabin, and it is possible to establish telephone communication.

The hydraulic system's pump has an adjustable capacity. It is driven by power take-off from the truck engine and requires a maximum power output of about 9 hp. When equipped with a winch, the truck also can be used as a revolving crane for hoisting loads of up to 1,100 lbs. Because the twin-section arm can be folded, when not in use, it extends from the truck a slight distance.

A working cabin, about 10 ft. long, 7 ft. wide, and 6½ ft. high, can be built on the chassis, and provided with a work bench, cabinets, interior lighting, and a lattice runway as well as revolving lights on the roof.

**Netherlands Trade Commission, 551 Fifth Ave., New York, N. Y. (Item 314)**



### Dual-Purpose Fire Hose

Dual-purpose industrial Hide-a-Hose allows fire protection from either side of a wall. The hose is stored on a reel mounted on one side of the wall. On the opposite side of the wall is a door to the compartment holding the hose nozzle and valve. Nozzle and valve are accessible from both sides of the wall, and hose may be pulled out from either side.

The product can be installed for service between rooms inside a building. It can also be installed to permit the hose to be used indoors and outdoors. Besides fire protection, the hose is available for washing floors, sidewalks, and other purposes.

The unit includes a double-flanged aluminum reel, 44 in. in diameter, an aluminum compartment 16 in. wide by 8 in. high, 150 ft. of  $\frac{3}{8}$ -in. garden hose (rubber-and-nylon hose) and a brass fog and stream nozzle.

Hide-a-Hose allows prompt action to extinguish small fires before they become big ones. The type of protection is intermediate between hand extinguishers and a regulation fire hose or sprinkler system. The nozzle is adjusted for fog or stream, which may be continued without interruption until the fire is out.

The hose cannot stick while it is being pulled to the scene of a fire, nor can it kink if it is pulled out in a straight line. The action of pulling out the hose immediately releases a brake on the hose reel. As soon as the pulling of the hose is stopped, the brake re-engages the reel, stopping its rotation. The reel cannot continue to rotate under momentum to unwind unwanted feet of hose. Concave roller bearings allow the hose to travel smoothly in all directions of pullout.

**Flinchbaugh Murray Corp., 66 N. Murray Place, York, Pa. (Item 315)**



### Magnet Chain Assembly

In the Bell-type magnet chain assembly is the Campbell bell, an alloy casting with no moving parts. The Campbell bell magnet assembly is available with

welded alloy coupling links or alloy Wedgloks, which make it possible to replace chain legs on the job.

This chain is constructed of heat-treated alloy steel.

For More Information—Circle Item Number on Reader Service Postcard

All legs are straight at a 120-degree angle from the bell to the magnet, giving even weight distribution and eliminating friction-causing twists. The bell does not work-harden at any temperature and never requires annealing. At rest, the bell stands upright. The crane hook can be engaged without help.

The Campbell bell, exposed to exhaustive field tests, uses 1 in. and 1½ in. chain, and will fit all magnets up to 60 in. diameters.

**Campbell Chain Company, York, Pa. (Item 316)**



### Aluminum-Impregnated Textiles

A process for impregnating any textile material or fabric with

aluminum permits the fabric to retain its original strength, texture, design, and flexibility while making the material heat resistant up to 2500 F. According to tests made by the United States Testing Company, the coating prevented 96 per cent of heat from penetrating materials tested.

Effectiveness of aluminum-impregnated fabrics will be demonstrated to anyone who will submit one yard of cloth for this special treatment. There is no obligation; the fabric will be aluminum treated in any desired color and promptly returned to its sender without cost, together with the test report from the United States Testing Company.

**Baxter, Kelly, & Faust, Inc., Safety Fabrics Div., "C" and Tioga Sts., Philadelphia 34, Pa. (Item 317)**



### Pallet Bars

Pallet bars are said to provide an easier, safer, and faster way for crane

handling of pallets.

These bars are positioned under any pallet. Their ability to balance loads and eliminate chain slippage ensures safer handling to men and materials, and also reduces pallet damage and maintenance.

Cast steel hooks are welded to walled tubing to provide support capable of handling loads of several tons. These bars are coated with yellow paint as an additional safety precaution.

The bars are made in 32, 38, 44, and 50 in. lengths.  
**Calumet Steel Castings Corp., 1636 Summer St., Hammond, Indiana (Item 318)**



### Blowdown Ring Control for Gases

The Farris 1870 Series of safety relief valves provides blowdown ring control for gasses and vapors, and safety relief for liquids in a range of applications where maximum pressure is 300 psi.

This series has a one-piece stainless steel body and stainless steel disc which contains inlet pressure without other joints or gasketing. This one-piece stainless steel construction provides a leakproof seat that eliminates waste and corrosion problems.

The optically ground stainless steel seat and disc of this series assures maximum tightness.

These valves are available with tungsten steel springs for temperatures up to 800 F, with a choice of plain cap, packed cap and lever, or open lever. Inlet connections include male screwed or 150# and 300# raised face flange types. Flanged valves have full RF diameter.

**Farris Engineering Corp., Palisades Park, New Jersey (Item 319)**



### Lock Prevents Use of Cord

The Power-Blok lock can be slipped onto the prongs of

a power cord and locked in place with a key, preventing use of the power cord. It locks either two- or three-pronged cords.

This lock stops unauthorized use of power saws, lathes, and other power tools in homes or on construction sites and can be applied to electrical devices such as heaters, fans, automatic ironers, and washers.

**Hurd Lock & Mfg. Co., Almont, Mich. (Item 320)**

### Portable Audiometric Testing Room

An audiometric room for testing a person's hearing has been designed for civilian and military hospitals, physician's offices, and industrial plants where noise is a problem.

It can be assembled in a few hours without special tools. This room will be shipped in 24 to 36 components, depending on the model.

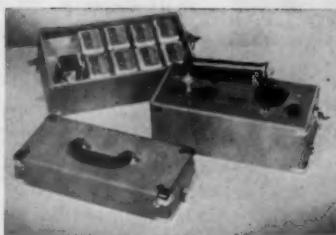
Rooms will be offered in four models with a choice of two colors. The largest model will be 96 in. wide, 96 in. deep, and 93 in. high. This is large enough to

For More Information—Circle Item Number on Reader Service Postcard

accommodate three subjects at one time.

This test enclosure will guarantee a noise reduction of up to 55 db., depending on the octave band.

**Koppers Co., Inc., Metal Products Div., 200 Scott St., Baltimore, Md. (Item 321)**



### Combination Sound Meter, Analyzer

A combination sound level meter and analyzer is the R.A. #100 Sound

Analyzer, which provides for octave analysis of sound by nonprofessionals and yet is accurate enough to satisfy the requirements of professional technicians.

Compact and lightweight, the Rudmose Model R.A. #100 is a transistorized unit in a case designed to fit under airplane seats and for carrying. Readings are made from one dial. The sound pressure dial is geared to the attenuator so the filter setting and sound pressure level setting must be related.

In this device, it is impossible to select an octave filter without having the "C" (flat) network automatically in the amplifier circuit. These controls reportedly make the measurement of decibels, over-all and in specific octave bands, a time-saving operation.

The instrument is also equipped with a built-in acoustic and electrical calibrator. Another feature, an earphone coupler, permits the checking of audiometer calibrations, eliminating need to return audiometers to factories or service centers.

Other features include a 15-ft. extension cable for the dynamic microphone and a leather strap for carrying the unit over the shoulder or around the neck. Extra accessories include a gooseneck, tripod, and 100 ft. extension cable.

**Industrial Acoustics Co., Inc., 341 Jackson Ave., New York 54, N. Y. (Item 322)**



### Disposable Protective Clothing

The Singer Tempora line now eases laundering problems with protective clothing made of a lamination of durable cloth and fiber. Soft and pliable, tear-resistant and flame-resistant, this clothing is comfortable. It can be thrown away and is available in capes with sleeves, bib aprons, and sleeves.

**Singer Glove Mfg. Co., 860 W. Weed St., Chicago 22, Ill. (Item 323)**

## NEWS ITEMS



### Willson Products

Two five-day national safety clinics have been sponsored by this firm at its Reading, Pa., headquarters. The schools offered training for 40 Willson counselor-representatives from the United States and Canada.

Theme of the clinics was "Safety Is Worth Working For," and the agenda included instruction, proficiency quizzes, and round table discussions on four dimensions of safety: eye, hearing, head, and respiratory protection. The school was staffed by experts from the firm's research and development departments.



### Davis Instruments

Charles I. Buckley has been appointed sales manager of Davis Instruments, a division of Davis Emergency Equipment Co., Newark, N.J. He was formerly instrumentation engineer for the Colgate Palmolive Central Engineering Division.

Before that he was associated with the Brown Instrument Division of Minneapolis Honeywell Regulator Company in Philadelphia, serving first as a design engineer in product engineering, later in instrumentation application work in the food, chemical, and public utility fields.



### Medical Supply Co.

Appointment of Paul W. Sanders as merchandizing manager of its general offices at Rockford, Ill., and Harry J. Ellis as Southwestern Region sales manager with headquarters at Dallas, has been announced by Medical Supply Company.

Sanders for the past eight years has been the firm's regional sales manager of 11 southern states. Among his new duties will be supervision of advertising, sales programming, and market and product research.

Ellis comes to the firm after working for more than seven years as Gulf Coast Division safety supervisor of Loffland Brothers Co., Inc., New Iberia, La.



H. J. Ellis

### M. Setlow and Son, Inc.



B. Rappaport



S. Victor

M. Setlow and Son, Inc., have created three top management positions at their New Haven headquarters. Bernard Rappaport has been named sales vice-president Sidney Victor is production vice-president; and Samuel Weissman is executive vice-president.



S. Weissman

### E. D. Bullard Co.

E. M. Witzel of San Rafael, Calif., has been appointed Eastern District sales manager for the E. D. Bullard Company. Witzel joined the firm in 1958 and has been a member of the California sales staff. His appointment was effective July 1.



E. M. Witzel



### The Granet Corp.

This firm, located in Framingham, Mass., is adding 50 per cent of present production space and additional office space. Granet manufactures coated fabric industrial work gloves, selling through industrial distributors in this country and many foreign countries.

### Boyer-Campbell Co.

Robert A. Foster has been named sales manager of the Industrial Division of the Boyer-Campbell Co., Detroit. He has worked with this firm for 20 years. Previously he has been branch manager of Boyer-Campbell-Plymouth.



R. A. Foster

## Calendar Contest For May

Homeward-bound from a party, Big Neal Was whooping it up at the wheel— Got wilder and faster, Inviting disaster



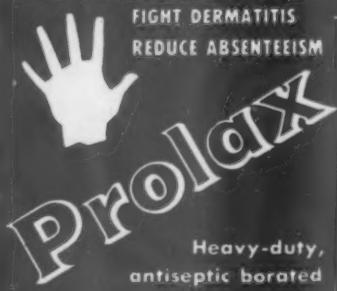
Mrs. James W. Boyatt of Hughes Aircraft Co., Fullerton, Calif., won the \$100 first prize in the National Safety Council's Safety Limerick contest with this line:

*"So ABSTAIN or REFRAIN taking wheel!"*

The contest appears monthly on the back pages of the Council's calendar. The theme for the May contest was "Don't Invite Accidents."

Second prize of \$50 went to V. L.

You need all the hands you can get



Removes shop grime gently yet thoroughly —

Reduces resident bacterial population on skin as much as 95%; contains hexachlorophene.

Prolax fights dermatitis. Its heavy-duty cleaning action and sanitary feature mean added protection.

Prolax dispenses neatly, lathers freely. Completely soluble in rinse water; cannot clog drains.

Prolax is accepted enthusiastically by both men and women in shop and office. In bulk or 5 lb. boxes.

For free sanitary survey  
of your premises ask  
your Dodge service man



Circle Item No. 80—Reader Service Card  
National Safety News, August, 1960

Smelko of Standard Oil Co. (Ind.), Whiting, Ind. The entry was:

*"For all in the path of this heel."*

Mrs. Tom Clarke (Individual Member), Memphis, Tenn., won third prize of \$25 for this line:

*"He'll murder, though he'd scorn to steal."*

The 30 winners of \$5 prizes are:

Miss Elaine Walters, Kennecott Copper Co., Bingham, Utah.

Mrs. Susie B. Goolsby, E. I. DuPont de Nemours & Co., Birmingham, Ala.

Richard B. Potocki (Individual Member), Springfield, Va.

Mrs. Elsie Parker (Individual Member), Amsterdam, N. Y.

Miss Dorothy Finkbiner (Individual Member), Salem, Ore.

Jack Williamson, Kaiser Steel Corp., Fontana, Calif.

Mrs. R. F. Bouley, Northeastern Public Service, Worcester, Mass.

Mrs. J. D. Thompson (Individual Member), Oklahoma City, Okla.

R. C. Comings, Standard Oil Co. (Ind.), Whiting, Ind.

Mrs. Joseph H. Lacey (Individual Member), West Chester, Pa.

Mrs. Rose Lovejoy (Individual Member), Pasadena, Calif.

Mrs. Catherine C. Smith (Individual Member), Miami, Fla.

Mrs. Barbara Maltbie (Individual Member), Waldport, Ore.

William Howe, American Brake Shoe Co., Superior, Wis.

Mrs. Edna Geries (Individual Member), Fresno, Calif.

Gilbert Gall, Alpha Portland Cement Co., LaSalle, Ill.

Mrs. Louis Littlefield (Individual Member), Normal, Ill.

Miss Mabel C. Seyfried, Lehigh Portland Cement Co., Catasauqua, Pa.

Clarence E. Davis, Arizona Public Service, Saguaro, Red Rock, Ariz.

Miss Margaret E. Fish, Cheney Brothers, Inc., Manchester, Conn.

Mrs. Lonnie E. Lewis, Celanese Chemical Co., Kingsville, Tex.

Mrs. Mary Carter Slosarz, Indiana Employment Security Div., Indianapolis, Ind.

Miss Agnes C. Lomax (Individual Member), Fall River, Mass.

J. L. Woosley (Individual Member), Carlisle, Ark.

Mrs. Earl Boyle, Buckeye Steel Castings Co., Columbus, Ohio.

A. L. Jordan, U. S. Post Office, Tulsa, Okla.

Floyd Snyder, Bethlehem Steel Co., Bethlehem, Pa.

Miss Harriet Reagh (Individual Member), Los Angeles, Calif.

Max Levin, U. S. Post Office, Milwaukee, Wis.

Mrs. Shirley H. Wilson (Individual Member), Thornton, Colo.

Circle Item No. 81—Reader Service Card

# TULITO SAFETY CLAMP

(Patented. Other Patents Pending)



**LOCKS  
INSTANTLY!**  
**Absolute  
Safety  
Assured**

Forget the  
dangers of  
high climbing  
...use TULITO  
SAFETY  
CLAMPS.  
Thousands are  
now in use on  
every type of  
structure.

**FULLY  
APPROVED BY  
INDUSTRIAL  
COMMISSIONERS  
AND SAFETY  
ENGINEERS.**

**MEYER MACHINE, INC.**

137 Bluff Street Red Wing, Minnesota

## SLIP-ON GUARD



NO ACCIDENT A  
DAY KEEPS THE  
DOCTOR AWAY

## GETS-A-LITE GUARD and GUIDE

Quickly and Easily Installed  
by Anyone—No  
Tools Needed!

- Simply slip GETS-A-LITE GUARD AND GUIDE over the fixture, as illustrated.
- Made of indestructible spring steel wire. Nothing to break, get out of order or replace. Will last indefinitely.
- Once installed, GETS-A-LITE GUARD AND GUIDE is NEVER removed.
- Nothing to unlock, fuss with or lock, when changing lamps.
- GETS-A-LITE GUARD AND GUIDE actually steers lamp into socket enabling maintenance man to change lamp in 10 seconds!
- Available for 40 watt and 100 watt fluorescent lamps.

**GETS-A-LITE CO.—Dept. NSN-860**  
3865 N. Milwaukee Ave., Chicago 41, Ill.

Circle Item No. 82—Reader Service Card



## TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.

### Elevator Rope Guide

Lubrication, safety factors, diagrams, and specifications are described in Elevator Wire Rope book, E-10, published by Macwhyte Wire Rope Co., Kenosha, Wis. This publication will be of interest to elevator manufacturers and those engaged in repair and maintenance of passenger and freight elevators.

For more details circle No. 400  
on enclosed return postal card.

### Ultrasonic Flow Detection

Bulletin T200, an eight-page illustrated bulletin, tells advantages of a pulse-echo instrument which has low frequency resolving power and penetration. Compact and portable, this device involves no radiation hazard. Branson Instruments, Inc., Brown House Road, Stamford, Conn.

For more details circle No. 401  
on enclosed return postal card.

### "Sneak Attack"

An account in color film of how easily fire may strike and in a matter of moments turn a peaceful home, institution or industrial plant into a roaring inferno and death trap has been re-issued in 16mm. sound prints by the Falcon Alarm Co., Summit, N. J.

For more details circle No. 402  
on enclosed return postal card.

### Air Pollution

This 4-page brochure announces the portable 500-VOLUME Air Sampler, developed by the New York office of the U. S. Atomic Energy Commission and now available for private industry. Through filter paper these units sample large volumes of air for particulate matter. The sampler, which uses a turbine type blower principle, reportedly has proven successful in sampling air containing particles as small as 1/100th micron in diameter. Designed for indoor and outdoor sampling, the device is made of cast aluminum. A heavy-duty pump (40 hp) and high-speed motor (15,600 rpm) are built into the lightweight casting and are designed for 24-hour sampling jobs. The unit weighs 10 lbs. Manufactured by the Staplex Co., Air Sampler Div., 777 Fifth Ave., Brooklyn, N. Y.

For more details circle No. 403  
on enclosed return postal card.

### Centrifugal Fan Cooling Towers

A bulletin has been published by Hallstead & Mitchell Co., Pittsburgh on its series of centrifugal fan cooling towers. Sizes from 5 to 30 tons capacity for either horizontal or vertical air flow, these centrifugal fan cooling towers are designed for indoor installations requiring long ductwork runs. Designed to conserve up to 95 per cent of cooling water used in refrigeration, air conditioning, or process applications, the units meet municipal regulations to conserve cooling water.

For more details circle No. 404  
on enclosed return postal card.

### Safety Switch

Design "extras" published for safety switches include: visible double blade construction; positive, quick-made and quick-break operation; double insulation between blades and operating mechanism; optimum-size enclosures for maximum heat dissipation; wiring space for faster installation; and yellow operating handle that is visible even in poor light. Clark Controller Co., 1146 E. 152nd St., Cleveland 10, Ohio.

For more details circle No. 405  
on enclosed return postal card.

### Nuclear Instruments

The General Electric Atomic Power Equipment Department has announced a bulletin describing a line of nuclear instruments and a range of instrumentation system-design services. A four-page illustrated bulletin, GEA-7006A, comments on nine nuclear instruments available for immediate delivery: stable micro-microammeter, high-voltage power supply, log-N period amplifier, log count rate meter, log count rate meter with period, linear count rate meter, preamplifier, flux amplifier and actuator amplifier.

For more details circle No. 406  
on enclosed return postal card.

### Nose Stations and Mixing Units

Used frequently by dairy, brewery and food processors in local clean-up operations, these mixing units and spray nozzles can be adapted by other industries with similar clean-up problems. Strahman Valves, Inc., have descriptive literature on steam and cold water, hot and cold water, mixing units, pedestal and wall mounted. Accessories also are listed.

For more details circle No. 407  
on enclosed return postal card.

### Ground Detector Alarm

The National Electrical Code and NFPA Bulletin 56 require a ground contact indicator, in addition to all usual control and protective devices, for the ungrounded systems serving hospital operating rooms and other locations where anesthetics are used. Crouse-Hinds ground detector alarm equipment consists of Type GDA resistor type ground detector and type GDP indicator and alarm unit, and meets N.W. Code and NFPA requirements for detecting circuit grounds in such locations. As mentioned in the firm's literature, the ground contact indicator will respond when any conductor of the system becomes grounded through a resistance or a capacitive reactance of any value up to 60,000 ohms. The current through the ground indicator to ground under such conditions will not exceed 2 milliamperes. A green signal lamp, visible to personnel in the anesthetizing location, remains lighted while the system is isolated from the ground, but an adjacent red signal lamp and an audible alarm signal are energized when the indicator responds to leakage current. The signal may be altered by a momentary push button switch. Crouse-Hinds Co., Syra-

ceuse 1, N. Y.

For more details circle No. 408  
on enclosed return postal card.

### Centrifugal Dust Collectors

Bulletin C-1, released by the Kirk & Blum Mfg. Co., 3120 Forrer St., Cincinnati 9, Ohio, describes their "Series C" centrifugal collectors. C-3 Collectors are made in 24 sizes for volumes to 54,500 cu. ft. of air per minute to handle ordinary mixed sizes of dust. C-5 Collectors are made in 17 sizes for volumes to 6,500 for finely powdered materials. Both types of collectors are designed to combine the pressure and power-saving factors of 180 deg. exterior involute inlets, with dust separation obtained with small diameter cylinders and long cones. Principal dimensions, gauges of material, and weights of collectors and accessories are shown.

For more details circle No. 409  
on enclosed return postal card.

### Voice Gun

A brochure, commenting on the transistorized "Voice Gun," has been released by Wm. A. Holmin Corp., Rockford, Ill. Information is provided on material used in the horn, handle and mouthpiece of this power megaphone, reported unbreakable. Data is given on the transistor amplifier and the power supply. Included is a cutaway section of the 3-1/4 lb. "Voice Gun," detailing the microphone, transistor amplifier, speaker and power supply.

For more details circle No. 410  
on enclosed return postal card.

### Valves With Spherical Union Connections

Information on Spherical Union Connections, available as an optional feature on Jerguson valves, is covered in Data Units #377. These spherical unions compensate for up to 10 per cent misalignment of vessel tappings in any direction from the perpendicular axis and wide variation in centers. Jerguson Gate & Valve Co., 80 Adams Street, Burlington, Mass.

For more details circle No. 411  
on enclosed return postal card.

### Safety Helmet Research

The Joseph Buegeleisen Co., 21220 West Eight Mile Road, Southfield, Mich., has issued booklets covering the story of their three-year safety helmet research project. The booklet covers the history of the safety helmet and research methods followed by BUCO under the guidance of a leading midwestern university. The booklet has been developed by BUCO to inform the public about problems faced in design and manufacture of a safety helmet to lessen possibilities of brain concussion and skull fracture.

For more details circle No. 412  
on enclosed return postal card.

### Noise Abatement

Johns-Manville's catalog AC35A contains construction diagrams, sound-control selection charts, and data tables for sound-absorbing materials. This information will be helpful to engineers and specifiers.

For more details circle No. 413  
on enclosed return postal card.

### Cooling Towers

Bulletin 51-902, J. F. Pritchard & Co., 4625 Roanoke Parkway, Kansas City 12, Mo., describes three series of cooling towers which have corrosionproof, fibrous glass reinforced fanstacks, laminated wood panels, oversized access panels, and fire-resistant casings.

For more details circle No. 413  
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### Submersible Motors

This publication is illustrated with cutaway and exploded view drawings are submersible pump motors from 5 to 300 hp. Features include comments on the water-filled operating principle as opposed to the oil-filled. Bulletin F-200, U. S. Electrical Motors, Inc., 200 E. Stlauson Ave., Los Angeles 11, Calif.

For more details circle No. 414  
on enclosed return postal card.

### Firing Equipment

The 12-page Catalog 6260 covers gas, oil and coal-handling equipment for automatic firing of industrial boilers. Discussed and illustrated are auxiliary equipment, control panels, stokers, burners, and fuel selection. Iron Fireman Mfg. Co., 3170 W. 108th St., Cleveland 11, Ohio.

For more details circle No. 415  
on enclosed return postal card.

### Shelf Truck

For handling small parts in tote pans, order selecting, and similar functions here is a battery-operated shelf truck with drive and steering controls at each end for operation in narrow aisles. Company literature discusses shelves that come in widths, lengths, and heights to suit the products to be carried. Lewis-Shepard Products, Inc., 125 Walnut St., Watertown 72, Mass.

For more details circle No. 416  
on enclosed return postal card.

### Pallet Racking

Conversion of standard pallets into low-cost portable racks without the use of bolts, nuts, or screws is the subject of this publication. Racks, with loads of 12,000 lb., can be stacked ceiling-high and handled with lift trucks Union Asbestos & Rubber Co., 332 S. Michigan Ave., Chicago 4, Ill.

For more details circle No. 417  
on enclosed return postal card.

### Wheel Blocks

To provide instant grip for heavy trucks and trailers, wheel blocks mentioned in this data are constructed with longer outermost calks (spurs). As load pressures increases, middle calks grip the pavement for positive holding. Calumet Steel Castings Corp., 1636 Summer St., Hammond, Ind.

For more details circle No. 418  
on enclosed return postal card.

### Wheel Stretcher

A first-aid wheel stretcher described has a removable litter that can be set in the floor (resting on 2 in. legs) for placement of patient. The litter top has 1 in. foam pad and restraining straps, and a rubber bumper around the edge. The stretcher with balloon-type air tires. Simmons Co., 300 Park Ave., New York 22, N. Y.

For more details circle No. 419  
on enclosed return postal card.

### Power Actuated Stud Driver

Literature discusses anchoring wood or metal to concrete or steel. Actuated by 0.25-caliber powder charge, Model 660 sets up to six alloy steel fasteners in a minute, automatically ejecting spent cartridges. Weight is less than 7 lb. Gregory Industries, Inc., 518 Jefferson Ave., Toledo 4, Ohio.

For more details circle No. 420  
on enclosed return postal card.

### Concrete Vibrator

Literature describes a head that fits between reinforcing bars, this heavy-duty vibrator causes mixture to flow like liquid at 9000 vibrations per minute, providing fill-up of forms up to 30 in. with concrete of at least 2½ in. slump. Ingersoll-Rand Co., 11 Broadway, New York 4.

For more details circle No. 421  
on enclosed return postal card.

### Protective Equipment

Illustrated in this 32-page catalog are electricians' rubber gloves, sleeves, protectors, inner liners, and warning flags. Included are instructions on the proper care of high-voltage rubber protective equipment. Charleston Rubber Co., 16 Stark Industrial Park, Charleston, S. C.

For more details circle No. 422  
on enclosed return postal card.

### Dockboards

A 4-page folder describes four models of magnesium dockboards with one-piece curb and forged ends. The dockboards are shown in use, pointing out design features. Brooks & Perkins, Inc., 1950 W. Fort St., Detroit 16, Mich.

For more details circle No. 423  
on enclosed return postal card.

### Lightweight Vehicles

Cushman Motors, Lincoln, Neb., has literature on their Truckster in electric and gasoline versions. Performance figures, available body accessories, mechanical specifications, capacities are shown.

For more details circle No. 424  
on enclosed return postal card.

### Compressed Air Filter

With use of improved baffling, the claim is 100 per cent liquid removal. Transparent plastic bowl resists fatigue under cycling load to provide safety. No tools are required to clean unit quickly. Available in pipe sizes of ¼ to ½ in. C. A. Norgren Co., 3400 S. Elati St., Englewood, Colo.

For more details circle No. 425  
on enclosed return postal card.

### Mobile Elevator

Fifth-wheel steering is an optional feature for greater maneuverability. This publication discusses the "Hy-Boy" that rolls easily and reportedly can be more accurately guided than with casters. This unit is battery-powered with a convenient handle that gives positive steering control. West Bend Equipment Corp., P. O. Box 246, West Bend, Wis.

For more details circle No. 426  
on enclosed return postal card.

### Monorail Conveyor

Literature describes device that can be set to travel automatically to any one of eight stations, stop for loading, then re-set to return to original station. Electrically propelled at 90 fpm., or manually, it can be stopped anywhere in system by obstructing path. American MonoRail Co., 1111 E. 200 St., Cleveland 17, Ohio.

For more details circle No. 427  
on enclosed return postal card.

### Metal Partitioning

This Globe metal partitioning catalog describes how expanded metal partitioning with Quik-Erect fittings can provide walls in plants with enclosure problems, protect windows and machines, and make extra storage facilities. The Globe Co., 4000 S. Princeton Ave., Chicago 9.

For more details circle No. 428  
on enclosed return postal card.

### Pipe Marker Kit

In this package are instructions for setting up a uniform marking system for pipes of many sizes. The kit tells how

pipes must be marked for maximum safety and protection, where they should be located to speed tracing, how they should be marked to conform to American Standards Association Standard A-13, "Identification of Piping Systems," which calls for legend-plus-color identification. Each kit contains a six-page "planning guide" for determining the number of individual pipe markers required. Also included are samples of self-sticking Perma-Code pipe markers for testing under actual temperature and environmental conditions. W. H. Brady Co., Dept. PK, 727 West Glendale Ave., Milwaukee 9, Wis.

For more details circle No. 429  
on enclosed return postal card.

### Pneumatic Silencer

Silencing of air-operated equipment reduces frayed nerves and worker fatigue. Quietaire, made by C. W. Morris Co., 10628 Cloverdale, Detroit 4, Mich., is a self-contained unit, described in this literature. There are no cartridges, no parts to be replaced, no need to take the device apart for cleaning. It is safe for pressures normally encountered in industrial pneumatic service, and is corrosion-resistant.

For more details circle No. 430  
on enclosed return postal card.

### Synthetic Accident Victims

Synthetic accident victims add realism to first-aid training. These rescue breathing trainers, injury moulages, and synthetic casualties, conceived and developed by the Medical Illustration Service of the armed forces for their training programs, are described in Catalog No. 31 from Alderson Research Laboratories, Inc., 48-14 33rd St., Long Island City 1, N. Y.

For more details circle No. 431  
on enclosed return postal card.

### Fire Protection for Power Plants

Fire extinguishing equipment for power plants and electrical installations, and the use of carbon dioxide for generator purging and coal bunker inerting, are described in a bulletin from the Cardox Division of Chemetron Corp., 840 N. Michigan Ave., Chicago 11. Illustrated are "hot spot" hazards encountered in power plants and the type of fire protection best suited for generator, turbine and generator bearings, generator-turbine head-ends, turbine oil tanks, and for auxiliary facilities such as switch gear rooms, lubrication, oil storage rooms, fuel oil storage rooms, cable ducts, coal pulverizers, and hydrogen destraining units.

For more details circle No. 432  
on enclosed return postal card.

### Smoke Ejection

A handbook on the principles and operational procedures of eliminating smoke from confined areas in event of fire or emergencies is available from the Super Vacuum Manufacturing Co., 975 Grant Street, Denver 3, Colo. Illustrated are practical applications of smoke ejectors on the market.

For more details circle No. 433  
on enclosed return postal card.

### Electric Eyes

Included in this six-page brochure is a comparison between the human eye and the photoelectric eye. In addition, a description of their application in automation and general industry is reviewed, along with detailed drawings of typical installations. Miniaturized measuring instruments are mentioned. Photomation, Inc., 96 S. Washington Ave., Bergenfield, N. J.

For more details circle No. 434  
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Chicago 11, Ill. WHitehall 4-4800

advertising manager:  
Bob Jones

advertising production manager:  
John Tribble

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### advertising sales representatives

Chicago: MacIntyre-Simpson & Woods

75 E. Wacker Drive, CEntral 6-1715

New York: MacIntyre-Simpson & Woods

101 Park Ave., LExington 2-0202

San Francisco: Duncan A. Scott & Co.

85 Post St., GArfield 1-7950

Los Angeles: Duncan A. Scott & Co.

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to obtain more information on . . .

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Here's how it works—

Printed below are two identical Reader Service postcards—the bottom one for your use; the top one for use by any other reader of this issue. All Advertisements, New Safety Equipment announce-

## • New Safety Equipment

## • Trade Literature

ments, Trade Publication listings carry item numbers corresponding to the numbers printed on the cards. Just circle the numbers of the items you want to know more about and send us the postage-free card. We'll have the full information or sample copies sent to you—without obligation.

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—feature equipment and services that will help you solve accident problems in your plant. Instead of making a "mental note," make sure you get full information by sending in the card. If no item number appears with an ad, it will be found on the opposite page, next to the arrow. Cover position ads are shown on the cards as: IFC—inside front cover; IBC—inside back cover; BC—back cover.

use the cards below to get more information on products advertised, new safety equipment, and new trade literature . . .

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48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
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98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	
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AUGUST, 1960

(Good until October 31, 1960)

NEW SAFETY EQUIPMENT:

301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325
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425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449

(Please print your name and address in full — do not abbreviate)

NAME \_\_\_\_\_

POSITION \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY & STATE \_\_\_\_\_

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—are catalogs, brochures, spec sheets and booklets—a wealth of helpful literature—describing equipment and services that will assist you in comparing before you buy. You can build a valuable safety equipment reference file with these free publications.

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IFC	IBC	BC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	
48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
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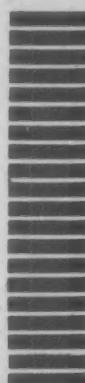
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TAKE  
ANOTHER  
LOOK  
AT

- the ADVERTISING pages
- the NEW SAFETY EQUIPMENT section
- the TRADE PUBLICATION section

Make sure all the items you want to know more about are circled . . . check to make sure your name, organization, and address are printed on the reverse side of the postcard . . . THEN mail it today.

National Safety News  
August, 1960

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3231 Freedom Avenue

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### KANSAS CITY, MO.

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17½ East 31st Street

### KNOXVILLE, TENN.

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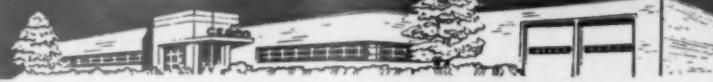
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# **AO Lightweight Welders' Clothing!**

These very comfortable garments of lightweight leather are recommended for welders working on gas shielded electric welding where Argon, Helium and similar gases are used. They should not be used for protection against sparks in electric arc welding.



### **CAPE SLEEVE WITH DETACHABLE BIB (C208B)**

Special soft, flexible leather protects chest and arms from harmful rays. All seams cotton stitched. Seam ends reinforced with steel rivets. Bib attaches to cape front by snap fasteners. 5 sizes.

NOT ILLUSTRATED — SHORT JACKET (C208). Jacket is 18" long.

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For welders who prefer to weld in a very lightweight jacket. Seams are double thread sewed. Snap fasteners down front. Snap fasteners on each sleeve for snug fit (nickel plated for heat reflection). Pocket also has snap fastener for security.

### **SLEEVE 18" INSEAM LENGTH (C209)**

Double thread sewed seams, snap at cuff. Leather thong around neck holds sleeve secure. The lack of unnecessary weight pays off in greater comfort, added efficiency, better welding.

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